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Illustrating the Futility of Price System Methods of Operation.
Interpreting the Trend of Events from the Social Aspects of Science.

— THE STAFF —

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When Is A 'Shortage' Not A Shortage?

Answer: When It's Good Business!

By Research Division. 8741-1

'There is no need for us to operate our present mileage of railroads. We would transport one-tenth of our freight if we could manufacture goods which would last ten times longer; and we could greatly reduce all railroad equipment by using only the most up-to-date types now available, if we were not hampered by Price System considerations that have no relation whatsoever to the physical operations of our social mechanism.' (William Knight (1880-1944), former Continental Director of Organization of Technocracy Inc. in an article in TECHNOCRACY, Series A. No. 5. December, 1935.)

It Was Two Other Fellows

In view of the tremendous barrage of controversy, newspaper scareheads, and Congressional hearings, the railroad freight car 'shortage' would appear to be one of the nation's major problems. Shippers complained all during 1947 that they were not given sufficient freight cars to load their products.

The railroads claimed that they didn't have enough freight cars to go around.

The freight car builders claimed that couldn't get enough steel with which to build more cars.

The steel companies claimed that they had allocated sufficient steel for the purpose of building freight cars.

In fact, every interest concerned claimed that its hands were lily-white. This indicates that there must have been a colored gentleman in the woodpile, somewhere.

The magazines, newspapers, and radio commentators took up the hue and cry. This naturally added to the confusion.

In a condition like this, it is advisable to look elsewhere than at publicity handouts for the correct answer.

Behind all the complaining and explaining, there usually is some expert chiseling going on.

Let's Look at the Record

The *U. S. Statistical Abstract* for 1946 reveals that during the peak war transportation in 1944, there were 1,797,000 freight cars in service in the U. S.

These 1,797,000 freight cars hauled 740 billion ton-miles of freight in 1944. A ton-mile is one ton hauled one mile.

The Abstract reports also that the average capacity of freight cars in 1944 was 50.8 tons.

The January 3, 1948, Statistical Issue of *Railway Age* throws more light on 1944 operations, by revealing that the average net tons loaded per car in that year was only 32.7 tons. 1944 was the peak year of war goods transportation and the all-time peak in ton-miles of freight hauled.

To this it adds the data that the average freight train speed in 1944 was 15.7 miles per hour, and the average total mileage per car per day was 51.9 miles.

Now, for a look at the 1947 'shortage' figures. *Railway Age* reports there were 1,740,000 freight cars in use on January 1, 1947.

During the year, 67,684 new freight cars were delivered. Railway Age states that there were 1,923,557 freight cars on line daily during August, 1947. However, retirement of old cars exceeded installations of new cars for

the first 8 months of the year. Since there are no exact figures on these retirements, we will take the number in service at the beginning of the year into consideration in this analysis. It is likely that this number is smaller than the actual number on line daily throughout the year.

These 1,740,000 freight-cars in use at the beginning of the year hauled 647 billion ton-miles of freight in 1947, or 93 billion *less* than in 1944. The ICC reports that the average capacity of freight cars in 1947 was above 51 tons, and that the average net tons loaded per car in 1947 was 32.6 tons. While average freight train speed was 16 miles per hour, the average total mileage per car per day was 48.8 miles.

Thus, we see that between 1944 and 1947 there was a decline of only about 3 percent in the number of freight cars in use. The decline in ton-miles of freight hauled, however, exceeded 12 percent.

To put this another way, the railroads hauled over 12 percent more freight in 1944 than in 1947, with only about 3 percent more freight cars.

During the period mentioned, the average capacity of freight-cars rose .2 of a ton per car; the average net tons loaded per car declined .1 of a ton, the average freight train speed rose .3 of a mile per hour, and the average mileage per day per car declined 3.1 miles.

'Shortage' or Wasted Space

Now, for just a few more figures, and then we'll start adding up the 'shortage.'

Recent A.A.R. data, published by the *Cleveland Trust Co. Bulletin*, reveals that in 1944 (at the peak of war transportation) there was a net daily surplus of about 11,000 freight cars. That is, that many more cars were available than were called for.

The same source reveals that in 1947 there was a net daily so-called deficit of 16,000 freight cars. In the week of October 18, 1947, 41,178 more cars per day were called for than were available.

In view of the fact that the total number of freight cars in use declined only about 3 percent between 1944 and 1947, how is it possible that the 11,000 daily car surplus of 1944 suddenly became a 16,00 daily car deficit in 1947?

The answer to that is what constitutes 'good business' under the Price System of private enterprise.

We have seen that the average capacity of freight cars rose slightly during the period mentioned, while the average net tons loaded per car declined slightly, and the average daily mileage per car declined considerably.

In 1944, according to *Railway Age*, the total number of cars loaded was 43,408,00.

In 1947, there were 44,537,000 cars loaded, or 1,129,000 more than in 1944.

Now, as we noted, there was 93 billion *less* ton-miles of freight hauled in 1947 than in 1944, i.e., 740 billion minus 647 billion.

This adds up to the remarkable fact that it required over a million *more* car loads in 1947 than in 1944 to haul 93 billion less ton-miles of freight.

If the freight hauled in the 1,129,-000 excess carloads of 1947 over 1944 had been loaded into the lesser number of cars that were loaded in 1944, it is plain that there would have been the extra space of at least a million freight cars available as a surplus for the year.

If we figure correctly on a 365 day per year basis, these excess million freight-cars used equal a net daily average of about 3,000 cars.

Add this to the 11,000 daily surplus of 1944 and we get a 14,000 car daily surplus, instead of a 16,000 car daily

deficit, providing the same number of cars were loaded in both years.

If it was possible in 1944 to haul 740 billion ton-miles of freight with a million less carloads than were used in 1947, it was certainly possible in 1947 to haul the greatly reduced ton-mileage of that year in the number of carloads used in 1944. If they can do it for war, what's stopping them from doing it for peace?

Business Means Business First

The only possile conclusion that can be drawn here is that the railroads made a lot of good business for themselves behind the smokescreen of a phony freight car 'shortage.'

In fact, *Business Week* for January 17, 1948, spilled a part of the beans. It reveals that freight revenues in 1947 totaled $6,950,000,000. This figure is 20 percent above the 1946 revenues and 44 percent higher than the fabled year of 1929.

Freight revenues for 1947 were exceeded only once before. That was in 1944 when they reached $7,000,000,000.

Please note that freight revenues for 1947 were almost equal to those of 1944, in spite of the fact that railroads hauled 93 billion *less* ton-miles of freight in 1947.

In connection with the so-called 'shortage' what was the reason for shipping 27,518 freight cars abroad in 1947? This was over 250 percent more than were shipped overseas in 1945, and fell short by only 10 percent of equaling the wartime exports of 1944.

Huge wartime exports were necessary to defeat fascism. If, as the railroads and everybody else claims, our own economy suffered during 1947 (a peacetime year) because of a shortage of freight cars, what was the reason freight car builders exported 27,518 cars while delivering only 67,-684 to our American railroads?

They exported about 40 percent of the year's production in the face of a drastic 'shortage' at home. Not only that, but another 26,000 freight cars are scheduled to be exported under the Marshall Plan in the next two years.

The only answer to all the above is that it is good business under a Price System, but mighty poor technological operation.

'Slow Train In Arkansas'

American railroads in 1947 loaded each freight-car with an average load of 32.6 tons when the capacity of the average car was 51 tons.

In other words, they hauled around empty space in each car that might have held 18.4 tons. That sums up to hauling 36 percent empty space around the country.

However, the railroads didn't burn out many bearings at it. The average freight train was in motion less than 3 hours per day in 1947. Figure it out, the data is all here.

A healthy man can walk further in a day than the average freight car was hauled in 1947.

Even under the compelling necessity of a total war against fascism, American railroads didn't do so hot.

The average carload in 1944 was 32.7 tons. The average car capacity was 50.8 tons. So we see that the railroads hauled empty space around in each car that might have held 18.1 tons.

Designed Direction Needed

Under the Price System of private enterprise, it is impossible to operate any physical equipment at a socially functional load factor.

The reason for this is that the Price System is an interference, financial control over production and distribution. Under this type of operations, functional load factors are, usually, incompatible with good business.

Technology, under a Price System, must always be throttled down. It can be allowed to operate only to the ex-

tent that it is profitable to private enterprise.

North America's railroads are efficient only to the extent that the rules of the Price System will permit, and no more. We cannot blame railroad technologists for this condition. They only work on the railroads and must obey orders from the financial controls over them.

North America's railroads need a complete overhauling and modernization, in line with what railroad technology knows how to do now, and in line with the transportation needs of this Continent and the people who inhabit it.

This can never be done under the Price System. However, it is technically practical and transporation technology knows how to do it. What is needed to solve the railroad problem is designed direction integrated with an overall scientific design of Continental social and industrial operations.

Technocracy Inc. has this design for operating the North American Continent.

The design is based upon scientific principles and will be carried out by technological methods.

In the North American Technate, the railroads will fulfill a different function than they do under the Price System. They will be integrated with a Continental System of Canals, lakes, seaways, deepened rivers and broad highways.

This system, in turn, will be integrated with an overall Continental Hydrology design for power production, transportation, reforestration, flood and erosion prevention, national defense, etc. Bulk freight will move by water at one-tenth of the energy cost required by rail.

It will move much faster than two miles an hour, which is the average speed of a freight car today, figured on its daily mileage basis.

The railroads will be widened to about 10 feet between the rails. Passenger and fast freight cars will, accordingly, be much wider and shorter. Heavier rails will be used. This sums up to a set-up wherein great stability and high speed is possible.

With an overall transportation design like this, North America can scrap a large part of its existing railroad mileage. There will be no competition for business, and thus no necessity to concoct artificial freight car shortages for the purpose of maintaining an arbitrary scarcity so that more profit can be extracted from the traffic.

Under the Price System of private enterprise today, nearly all shortages are artificial and arbitrarily enforced. All that North America has to look forward to under this system is more of the same, and worse.

In the North American Technate, all artificial scarcities will disappear. There will be Abundance, Security, and Equal Opportunity for all citizens.

This guarantee even includes the railroad tycoons. The difference will be that they will then be ex-tycoons. For, the railroad technologists will control as well as operate the railroads. Science will determine the what, when, where, and how of railroading on a basis of the General Welfare of all Citizens.

Sarnia, Ontario, Canadian industrial center, lies directly over a rich bed of shale that might (some say) yield 15,000,000,000 barrels of oil.—From 'Fortune' September, 1947.

The Los Angeles Department of Water and Power is constructing three 37,000 kilowatt hydro-turbine electric power plants. 'They will operate unattended.'—'Electrical World,' November 29, 1947.

Horsepower Sense About Technocracy

Wake Up, Joe, It's Getting Late

By Sam Pavlovic, R. D. 9344

The varied impressions and interpretations of Technocracy are interesting and oftentimes amusing. The non-Technocrat who evidences a sincere curiosity about it, as a rule, has a hazy idea that it has something to do with men and machines. Some of the ideas really take on fantastic fringes. This writer was once given the straight 'inside dope' that Technocracy was to be a government run by mechanical robots. We thanked the donor for the information, and pointed out that the idea was not new. It's a steal from the big three-ring circus in Washington, D.C.

Simple As A-B-C

Basically, Technocracy is easy to understand. Technocracy is an idea for a better way of life on the North American Continent. This will involve a complete social change. Technocracy does not advocate this change just because its membership desires it. It is not out to tear anything down. Technocracy, instead, is pointing out that the American version of the Price System is tearing itself down. In plain words, Americans have no choice, they must adopt social change if they intend to maintain and extend their present civilization. If not, they face the certainty of social chaos or social fascism. There's not much difference between the two.

Social change does not occur on a whim. The French and Russian revolutions are classic examples of social change in the past. The great mass of the population rose in armed revolt against the controlling class when the conditions of tyranny and oppression became unbearable. This type of social change follows a pattern of violence and bloodshed. It is a class struggle. In other words, it is premised on human attitudes. The power of control switches from one group to another while the basic pattern, whereby men live, remains the same. To put it another way, the orchestra changes, but the music remains the same.

Now, the basic reasons that are necessitating social change on the North American Continent are unique in that they are non-human. They are science and technology. The part that science has played in the drama of human civilization is ably presented in these words by Samuel Crowther in his book, *America Self-Contained*:

> **Gradually, almost imperceptibly, science has been drawing from nature some of her most essential secrets. It is the function of science to free the common man from an abject slavery to nature. The statesmen, the warriors and the economists, no matter what they pretend to do, can, at the best, only mop up after the scientists, or, at the worst, delay the effect of their research. Science and not the laws—the laws merely reaffirmed the facts—broke up, one after another, slavery, feudalism, absolutism, the twelve-hour day and other forms of human bondage. Science has changed the relations of nations, and now science is bringing about a fundamental change which amounts to a revolution but which is not recognized because it wears no labels and carries no banners.**

Too many people associate science only with certain physical paraphernalia which are representative of it. Fundamentally, science is a pattern of intellectual approach to the interpretation of man's environment. In other words, it is a method of thinking. Science is defined as the method

of determination of the most probable. Technocracy, as a Body of Thought, points out that the extension of this method to the field of social organization and operation is imperative under the impact of science and technology.

I Am With You Always

In the presentation of technology as a reason for social change, we, here, can only nibble at the edges of a most fascinating and most significant part of man's social development. Technology, reduced to its simplest terms, is the means with which men shape the physical environment wherein they live, to meet their needs. Technology came into being with the first stone axe and the discovery of fire. For long centuries its development was painfully slow. Its phenomenal growth, by the application of science and the use of extraneous energy, in the last one hundred and fifty years is a matter of record.

To show how the expansion of technology has changed the way men live, let's look at the fact that in the year 1800 eight men out of nine were engaged in farming here in America. The eight produced enough surplus food for the ninth man. Today, one out of nine men is a farmer and he produces enough to feed himself and the other eight. That's how technology operates. More technology equals more mechanical muscles. Plus on the mechanical muscles equals minus on the human muscles. This adds up to a promise of abundance and leisure. The realization of this is exceedingly painful to many Price System adherents. It is even considered sinful to dwell on such matters; the ancient rackets would have to close shop. The adherents are coming to realize that technology is extremely efficient at rolling out those GOING OUT OF BUSINESS signs.

In the presentation of Technocracy, it is noted that great emphasis is put on the word 'abundance.' Around this one word, the new social order in North America will pivot. Many Americans, from visual observation, have a vague and hazy picturization of what the word represents. The word symbolizes a physical reality and is not merely a verbal football to be kicked around. The word is made a reality by science and technology, plus North America's vast natural resources, plus our mass production know-how, plus the utilization of extraneous energy from coal, oil, gas and hydro-electric power.

Informed Technocrats, from study, know that our abundance, present and potential, is a measurable quantity. The America of the moment that we live in is the only land area on the globe that has reached that degree of social progression whereby it can potentially guarantee its collective populace complete security from cradle to grave. Yet, paradoxically enough, under the rules of the Price System, we suppress abundance and maintain deliberate and artificial scarcities.

I, Too, Am With You Always

Most individuals who come in contact with Technocracy are puzzled and curious about the expression 'Price System.' Ever since man left the hunting and foraging stage of his social development and settled upon specific land areas (this was made possible by the domestication of plants and animals), the skeletal framework of all his social systems have been fundamentally the same. The exchange of goods and services has always been carried on by a system of trade or commerce based on commodity valuation and employing debt tokens, or money. The succession of governments headed by chiefs, priests, kings, khans, emperors, dictators, presidents, etc., was only window dressing for the Price System. Functionally, the Price System has always operated much the

same behind these various styles of window dressing.

Man is a psycho-physical mechanism. For long ages, he was geared to his physical environment by human toil and hand tools. In the absence of science and technology, natural scarcity was the rule. Out of this arose all the institutions and operating rules we have today.

The Price System has been around for a long time. Through the centuries of man's societal development it was never threatened until recently. Those upstarts, science and technology, suddenly tore away the fancy garb of the Price System and revealed the emaciated and diseased body beneath.

All Mixed Up

The majority of the people, who show some social intelligence, are quick to confuse Technocracy with communism or socialism. The present working models of these latter social patterns divide a natural scarcity and establish social priorities by means of a centralized control. If a communistic pattern were forced upon North America, a system of bureaus headed by commissars would take the place of our present political bureaucrats. All of the other paraphernalia of the Price System would remain.

In the governmental phase of the North American Price System (political 'democracy'), the various social groups send their representatives to a common meeting place, at determined intervals, to jockey for priority advantages according to an established set of rules. Each group struggles for a larger cut of the artificially maintained scarcity that characterizes the Price System today in North America. If the General Welfare is enhanced, it is purely an accident.

The gap to be bridged in the mental makeup of those who confuse Technocracy is that the social blueprint of Technocracy is designed to distribute an abundance and not to divide a scarcity. Social organization and operation by the scientific method will bring into being a pattern of social synchronization and not social regimentation. The elimination of the regimentation of price and political interference will give science and technology room for unlimited expansion. Today, any attempt to better the General Welfare is completely controlled by price. In a Technate, as blueprinted by Technocracy, the physial requirements of 200 million North Americans will be the governing force.

The social organization and operation of the North American Technate by the scientific method will insure a maximum of efficiency with a maximum conservation of resources for the maximum production and distribution of physical wealth. The resulting standard of living will exceed the present standard in North America by a wide margin. In view of our present and potential abundance, the Price System method of distributing goods and services now in operation constitutes social fraud of the highest type.

In the matter of government by skill (social operations by the functionally capable) here is an idea to be well considered. As the impact of science and technology brought into being a new type of civilization, it also brought into being the need for a new type of public official. The administration of great public utilities calls for the highly trained and impartial functionary. Herman Finer in his book *Road to Reaction* focuses this idea in its social perspective:

> **There is in the nation a vast and yet untapped reservoir of human energy and ability which can operate such enterprises, and which will astound the world one day, and shame it that it was so long neglected. Splendid talent is begging for an oppor-**

tunity. It cannot find it in private business leadership, because in many cases private enterprise has not the capital, or the courage, or the brains, and in many cases talent will not stoop to those methods of private enterprise falsely believed to be necessary to the rendering of the services in question.

The Price System not only squelches a material abundance, but is equally guilty of squelching human talent. Those who have been conditioned to live by the old standbys 'where there's a will, there's a way,' 'virtue will find its reward,' etc., find that society now turns a cold shoulder toward these traditional virtues. The American Price System can and does hammer talent and ambition to their knees without mercy. In contrast, the Technate will be able to permit every citizen the widest latitude for self-expression because there will be no handicap of price.

Wake Up, Joe, It's Getting Late

Today, Technocracy is the only organization in North America which has the courage, and the vision to educate the continental populace for social change. It was previously stated that, basically, Technocracy is easy to understand. Unfortunately, there are many mentally muscle bound who will never grasp the idea, nor any other idea, for that matter. If Joe America is casting eyes toward those he terms as 'big shots' to lead him out of the social moods, he better get himself fitted for glasses. As previously stated, the Price System has been around as long as written history. Joe American's 'big shots' (those who enjoy the advantages of social supremacy under the Price System) aren't interested in having things changed.

Despite the fact that the Price System is ticketed for the junk heap, it may be made to linger around for some time yet. Joe American's profound social docility and inertia is a big help to the 'big shots' in this respect. By reason of this, the few have always managed to clamp the social yoke on the many.

It must be remembered that just sitting around and sipping coffee while waiting for the Price System to collapse will only cause the following: A lot of coffee will go down the hatch, and a goodly number of posterior callouses will be developed, while the Price System rolls on. Americans who are looking for the key to open the door of the New America of Tomorrow would do well to investigate Technocracy.

After all, what can you lose, Joe? What you want most is abundance, security, and equal opportunity, isn't it? Check! So do we all. The only question remaining then is how to get it. Technocracy knows how. Why not join this outfit and study the possibilities from the inside. It's a challenge, Joe! It is also an opportunity. Wake up, Joe, it's getting late!

Adam Smith Outwitted

'The trouble with our economy is that while we pretend to believe in capitalism and free enterprise, those are precisely the things in which we do not believe and will not, under any circumstances, permit. The THEORY is that a man should be permitted to sell his time, his labor or his goods at whatever price he wishes. The PRACTICE is quite different. The practice is that man must join his competitors in establishing prices; and after that must not, under severe penalties even including death, undercut the established price.'—Howard Vincent O'Brien in his column in the 'Chicago Daily News,' January 19, 1940.

The House And 'Our Way' of Life

Function or Tradition

By Sgt. Scoop. R. D. 12344

'The end-products of design are radically different, if one lays out the whole scheme of a given function in advance and then works down to the details, from what they would be if one started on the details and worked from them to the more general complex . . . The trouble with design in a social mechanism heretofore has been that neither the specifications nor the design has ever gone beyond the stage of minute details. We have designed houses by the thousands, but no one has ever designed a system of housing on a continental scale.' (TECHNOCRACY STUDY COURSE BOOK, Lesson 22.)

'Our Little Dream Cottage'

'We shape our buildings, then our buildings shape our lives.' So it has been said.

Appreciation of that statement is perhaps more important in America than in any part of the world. Americans are a building people. The typical American home builder is an eager, energetic, forward-looking individual, until he faces the problem of designing, even in the rough, his own dwelling.

He knows what function he wants in many items. He seeks comfort in automobile seats, reliability of radio reception, beauty and comfort in clothing. But he persists in building his dwelling on some design of a bygone day, incorporating inconvenience, discomfort, unreliability in the functions of heating, lighting, ventilating, and noise-elimination.

His house is generally unsuitable for either the vigorous activities of growing children or romance-minded teenagers. Adequate preparation is hardly ever made for pipe-and-slipper relaxation for the head of the house himself.

Why do we go so far from today to make improvements in living facilities? Why, when we decide to build a house, do we discuss with contractor or architect whether we shall build a Cape Cod cottage, a colonial mansion, a French Provincial or some other obsolete type?

Why don't we start with the facts of the purpose of the house in the first place: Simply and fundamentally a place for living? Of course, no one deliberately sets out to pick a design which will lead to unpleasant living, but the result is too often just that because of the back-ended approach.

A functional design, and therefore a pleasant one, develops from an analysis of the functions of a house. If an analysis of the functions needed in a given family reveals that the most appropriate form is a Cape Cod cottage, well and good. However, if some other conclusion is reached, as it will be in a great majority of the cases, then the present habit of so many in building the darling little cottage anyway qualifies the builders as gluttons for punishment if nothing more uncomplimentary.

A definition for a house of the type called 'home' by the agent who tries to sell you one is very close to this: 'A house is a shelter for a family, planned, constructed and equipped to give the best possible style and accommodations within limitations of supply of money or materials.' That's a Price System definition.

Regardless of financial considerations and the design of the house next door, certain physical facts are

the same and are very pertinent. No consideration of colonial, provincial, Cape Cod, or Victorian designs as any place with regard to any of these physical facts.

Two Can See As Cheaply As One

Take lighting. Our homes are badly lighted. This is not because we lack knowledge but because we approach lighting via the choice of fixtures rather than as a choice of illumination. The lighting in most of our homes is so bad it would not be tolerated in the corner delicatessen, and would be considered stupid in a modern factory.

Lighting problems in the home include the following: Light for reading that is variable in intensity and directed down on the table; reading light that is brilliant with bright surrounding areas; a dim arrangement in the living room for conversation periods;; up to 3,000 foot candles for constant sewing and possible only by special equipment; night lights in the bedrooms sufficient to see by but so arranged that they will not waken the sleeper.

A lighting expert, not a fixture salesman, should design the lighting apparatus to provide the desired illumination. He would likely eliminate all of most of the floor lamps in the living room, for instance, as being clumsy, space-wasting fixtures; many of the wall bracket fixtures as being dust collectors, wall clutterers and ineffectual light distributors. Tests would indicate that most of the table lamps in use are too low or have poorly designed shades.

The correct lighting will probably include a combination of indirect, direct-indirect, inside silvered lamps, bulbs in reflectors, lense-type spotlights built directly into the ceiling so that only a flush piece of glass shows, tube lights such as fluorescent; sockets so built that the bulb can be pointed in almost any direction. The amount and combinations must be determined, of necessity, by a lighting expert with proper devices for measuring the light intensities at the points of use.

The word 'use' is the key, for the particular use of the light at the particular spot concerned is the prime consideration.

European Hangover

In a survey of house structures, a list of why's is in order any time. Why do people spend money for shutters they never intend to use? Why do so many windows have eight to a dozen small panes when single large sheets of glass are easier to clean, far easier to look out of, and cheaper?

Why do people buy new, straight beams for a living-room and then take an adz to chip away at the surfaces until they look hand hewed? Why do people continually try to ape their ancestors and build houses designed to fit the living requirements of past ages? The same peoplewouldn't be seen wearing hoopskirts or driving down Main Street in a horse and buggy.

There is too much adherence to what might be called dead traditions and too little to functional needs of our own day. A house is a technical fact but it is also a social fact: 'We shape our buildings, then our buildings shape our lives.'

Look down a typical street today and what do you see shaping the lives of those who live along that street: Two rows of boxlike structures varied by superficial differences, such as different colored paints, cornices with a different cut, a dormer window more or less, porches on different sides of the houses, slightly different pitches to the roofs. Nowhere do you see much consideration to placement or structure to take advantage of prevailing summer breezes or of solar

heat. And you can be certain that the interiors are in minor variations of the traditional.

Windows are scattered on all sides of the houses without regard to the creation of cooling cross currents in summer or the reduction of house-chilling openings in winter. The whole set-up is one of pathetic conventionality, of inefficiensy, indefensible unless a hangover from tradition is a defense.

Some of the structures were more or less adequate for a particular time and place. Cape Cod cottages were not bad for their New England conditions, but on the north central plains of Texas where the writer has seen them transplanted they are totally unsuited to the rain, wind, sun and heat.

Unsuitability of exteriors is only the introduction to Unsuitability of interiors. Less functional thought goes into the typical American house than into the fender of an automobile. Design of a house should mean more than the trimming of a box. It must include the planning of every part of the structure until it echoes our real way of life.

The present-day house is inefficient. Rooms are arranged with little concern for their use and furnishings. Lighting in a scientific sense hardly exists. The structure is such that no degree of privacy can be enjoyed by any member outside of bedroom or bath. Closets are of inefficient size and shape, with doors constructed so that it is difficult to make full use of them without frequent moving of the contents.

Save for some advance in the kitchen and the adding of miscellaneous modern gadgets, little has been done to make housekeeping easier.

New Age, New Needs

In considering home as a social fact, one must realize that not only the size of the family has changed since colonial days; the type of family activity is drastically different. Many rooms were needed in the colonial house, and a lot of cubic feet of space. A 'heap of living' was done in the kitchen, hence the very large ones.

The social activities of the youngsters today has a direct bearing on the way a house should be built. Today the young folk hop into the automobile and dash downtown to the movies. In past generations, the home was the seat of much of the social activity. Inasmuch as much of the entertainment has moved out of the house, the kitchen may be smaller; so may the living room.

Our American ancestors moved forward boldly into the wilderness and built the best houses they could for the conditions and with their means. *We lack their courage.* They faced the facts of their times. We copy them and refuse to face our own times in such small-scale tasks as insisting on functional homes.

We let ourselves be regimented to a few fixed patterns of the past. Our houses stand as evidence of our fear to face the facts. 'We shape our buildings, then our buildings shape our lives.' It would be more correct to say that the buildings adapted for one age tend to restrict the people of a following and a different age. Obsolete home architecture is part and parcel of our obsolete social institutions in general.

In the final analysis the stage of human culture at any particular period determines its architecture. Today, a new culture is rapidly growing in North America, the culture of abundance. It is an outgrowth of the advance of Science and the impact of Technology upon our ancient social institutions. The New America of Tomorrow will work out an architecture of its own, free from the dead hand of the past. It will be an harmonious blending of technology and function.

'The Land I Love'

Every once in awhile a report comes out that reveals the Price System of trade and commerce for what it is, an extremely wasteful system. We always hear a great deal about the loss of forests caused by forest fires. It is widely publicised that cigarettes carelessly thrown away and camp fires left to burn are ruining our forests. Now, the Forest Service of the U. S. comes out with a report that forest fires rank only fourth as destroyer of forests. Which cause ranks first and second? You guessed it, or did you? It is 'good old free enterprise.'

The 'Chicago Tribune,' for November 23, 1947 in summarizing a Forest Service report states: 'No, 1 long-range menace, according to United States forest service records, is the harvesting of timber without providing sound methods for its replacement . . . Every year the cut and kill of saw timber in the United States is one and a half times as large as the growth. The current annual growth of saw timber is 35.3 billion board feet. The "drain" is 53.8 billion board feet . . .'

The second biggest drain is waste in logging and manufacturing. Only 43 percent by weight of the wood we cut or destroy in logging or import appears in products other than fuel. Some 35 per cent is not used at all. The remaining 22 per cent is used as fuel, much of it inefficiently.' The third biggest drain is damage by insects and disease. These account for an annual loss of 622 million cubic feet a year. Fire destroys 460 million cubic feet a year.

The 'Wall Street Journal,' for January 9, 1948 reports the discovery of a "tremendous" new oil field in West Texas. Geologists say the reserves there may run as high as 600,000,000 barrels. If so, this would boost the nation's reserves by 3 percent.

'The practice of most of our cities and towns of dumping garbage into streams, or burying it where it is inaccesable to agriculture, robs our topsoil of vitally needed organic materials. It is estimated, very conservatively, that in a city of the size of Chicago 40 tons of fat alone are lost each day in garbage. Since garbage ordinarily contains about 5 per cent fat, another 760 tons a day are lost in proteins, carbohydrates, minerals and vitamins.'—KarlB Mickey, Public cmfwytaohrdletaaaa From 'Health From The Ground up,' by Karl B. Mickey, Public Relations Department, International Harvester Company.

'Truly this is a headlong plunge toward disaster. For all practical purposes, topsoil is irreplaceable. Under the best conditions of vegetative cover, it takes nature several hundred years to build an inch of topsoil, and the average thickness of topsoil on virgin land was barely seven inches. In a very real sense we of the United States were only seven inches from destitution to begin with. We are closer to that now.'—Milton Eisenhower, president of Kansas State College speaking before the second annual Midwest Farm, Home and Industrial Conference at Topeka, Kansas, December 15, 1947. (As reported by the Hutchinson, Kansas 'News-Herald,' December 16, 1947.)

Today a new dust bowl could be in the making. So far, the rains have saved us. Even with the dry year, most of the land would not blow much in 1948. But if the wet cycle ends, if the dry cycle begins and the speculative land is abandoned, left without vegetation, then it will blow. Brother,how it will blow.'—Secretary of Agriculture, Clinton P. Anderson, speaking before the annual convention of the Kansas State Board of Agriculture at Topeka, Kansas, January 14, 1948. (As reported by the Hutchinson, Kansas, 'News Herald,' January 15, 1948)

In The Question Box

How Long Will the Price System Last?

By Speakers Division, 8741-1

Question:

Also, is it not true that other countries are having trouble under the Price System?

Let's take the second question first. Of course, it's a fact that other countries are having trouble under the Price System. They always have, and always will, while that type of social system lasts. Trouble is a normal product of the Price System. There are many different kinds of trouble. The Price System is organized to operate in such a way that it produces all the varieties of trouble there are.

It's a trouble to get a decent living under the Price System. It's a trouble to get a decent place to live. It's a trouble to find a landlord who is half-civilized. It's a trouble to get proper food in the right variety. That's why we have food faddists. They know that most of the food produced commercially is devitalized, degerminated, and demineralized. They know that malnutrition is widespread. So they go to a lot of trouble to beat the machinations of free enterprise. We call them 'crackpots.'

It's a trouble to stay healthy. It's a trouble to get educated. It's a big trouble to get the correct facts about the current conniving of free enterprise, politics and clericalism. It's another trouble to find recreation, at a reasonable price, that is above the level of a half-witted moron. It's a trouble to escape from the stupid radio. Now, free enterprise is going to pile television on top of that. This spells more trouble.

It's a trouble to get well when you are ill. Ninety-nine different schools of the healing art clamor for your business when you are sick. The school you fall for goes to a lot of trouble to relieve your symptoms and lighten your bank account. It's a trouble to raise a family. When your kid gets to the age where he wants to know the facts of life he, or she, asks the old man or Mom. Since, in about 95 percent of the cases, neither the old man nor Mom know anything about the facts of life (scientifically speaking) there is more trouble. The kids go out on the street and find out the wrong way. Then we have juvenile delinquency. That's a lot of trouble.

After a while those kids grow up and have kids of their own. Since they never learned anything but the wrong answers, they transmit the same to their kids. Thus, trouble is handed down from generation to generation. Right now, the trouble it used to be to find a job has eased off a bit. It won't be long, however, until that trouble returns magnified. When you hit 40 years of age, good old free enterprise says you're no good any more. Then trouble really begins. It's always been a great trouble to find the right occupation. Surveys show that about half the working population never find their right occupation.

It's a trouble when you are old. Everybody says you are in the way. You are, too, but you can't help it under the Price System. It refuses to provide a decent living for people when they are functioning as producers in the prime of life. Why should it provide a decent living for old people? After all, you know,, under the Price System, people are only

black marks on a white sheet of paper. The system is not operated for the mass of people. It's operated for the blessed minority.

It's a trouble to get along with your fellow citizen whose skin was made darker than yours by the Sun. We call that trouble 'racial antagonism.' There is no such thing. There is only the ancient and lousy Price System that has always thrived by pitting one group against another.

It's a trouble to get along with the 'foreigners.' There are the 'hunkies,' 'wops,' 'micks,' 'polaks,' 'dumb swedes,' 'bull-headed dutchmen,' etc. They have the same trouble. It all rises from the fact that America is a mongrel country. Like mongrel dogs fighting over scraps, we two-legged mongrels fight over hamburgers and scraps from the table of free enterprise. Every white person on this continent either came, or descended from one who came, from Europe. Every group that came here was always looked down upon by the group who preceded them. In turn, they looked down on all who came after them. This trouble works swell for the Price System. It keeps all the mongrels from getting together on a common program.

These are only a few of the troubles generated by the Price System. There are millions more. The biggest trouble created by the Price System is war. That is, it's a trouble for the great majority. The blessed minority always makes a good thing out of war. That's why the Price Systems of the Axis Pact of Fascism are in such trouble now. They lost the war. Their blessed minorities are, however, still sitting pretty. It's only the mass of people who suffer.

Yes, the troubles of the Price System are many and all other countries have their due share. Here, in North America, however, the troubles are multiplying. The Price System is having ever more and more trouble keeping science and technology hogtied. So far, the System has outwitted science. But the cost has been terrific. One more victory and the Price System is undone. Perhaps this current, artificial, postwar prosperity is that victory. It may bring the Price System low. The safest course is to string along with Technocracy.

Question:

About how much longer does Technocracy believe this Price System will continue?

Now, for your first question as to how much longer Technocracy 'believes' the Price System will last. This may surprise you, but Technocracy doesn't 'believe' in a single darned thing. It doesn't 'believe' that the earth is round. It doesn't 'believe' that the Sun makes the winds blow, and the rain fall, and the crops grow. It doesn't 'believe' that the ocean is salty; or that the mountains are higher than the valley; or that the methods of science are superior to the methods of the Price System.

Technocracy just isn't a 'believing' Body of Thought. It deals only in facts. Thus, we have to rephrase the question like this: 'What do the facts indicate about the life expectancy of the Price System?' To that we would answer that the Price System on this Continent cannot continue much longer. Just how much longer no man knows. What is a year or two in the life of a social system? It's only a moment.

We always tend to think of time in terms of our own personal evaluation. So, five years is a big chunk out of a man's life. The same evaluation does not necessarily apply to the Price System. To all intents and purposes, the Price System has been dead for many years, but still staggers on. In

Africa there is an animal called the rhinoceros. Hunters say it is the most stupid animal on earth. When shot square in the heart with a high power bullet, it continues to charge for many yards before it collapses.

The reason is that the nervous reaction of the rhino is so slow that its brain doesn't realize its body is dead until long after the event has occurred. It's that way with the Price System, only more so. When you consider that the animal stupidity of the rhino amounts to collossal genius alongside the mountainous stupidity of Price System operations, it's not hard to understand. The Price System died years ago. What we are enjoying now is the stink of its carcass cluttering up the highway to the New America of Tomorrow.

'That which ceases to function ceases to exist.' That is what happened to the Price System. It has ceased to function. Inevitably, it must be replaced by a totally new system designed to function for the General Welfare. The only alternative is social chaos. Why not get into Technocracy and make a complete study of the Price System and Technocracy's design of the Technate of North America.

It doesn't cost a cent, except the low dues. A little effort will make you a well-informed American. In this technological age, that is the best way to serve your country and Continent. You, too, will cease being a 'believer' and become a knower. Another thing about Technocracy is that it enables of the Price System. That's a big item, but don't 'believe' it; find out for yourself.

'How Many Times Did You Vote Today?' Under that heading the National Association of Manufacturers had an ad in the 'Farm Journal' for November, 1947. It showed a beautiful housewife carrying an armful of beautiful packages. Paragraph 1, of the ad reads as follows: 'Election day comes only once a year. Yet you "vote" many times EVERY day. For, each time you buy a bar of soap or a loaf of bread or a necktie, or anything at all, you cast a "vote" in favor of some product or service over a COMPETING product or service.'

Now, don't be alarmed boys. NAM is not thinking of coming out in favor of Technocracy. All the rest of the ad was a eulogy of good old free enterprise.

'It ain't ignorance that causes all the trouble in this world; it's the things that folks know that ain't so.'—Josh Billings.

A thin, stooped man with tired eyes, fingering an eviction notice, stood before the judge's bench. 'All I want is justice,' he said.

A woman who sought to evict him stepped forward. 'I know he can't find a place to move with eight children, your honor,' she said. 'But neither can I. That's why I bought the building. My children are living in three places now. Is that justice?'

'Justice,' the judge said, 'Everyone comes here looking for justice.'

—A scene in Renter's Court, Chicago, presided over by Judge John Gutknecht. (As reported by the 'Chicago Sun,' December 22, 1947.)

Senator J. William Fulbright (Dem. Ark.) states that American housewives waste 11,000,000 pounds of oleomargarine annually in the process of coloring it yellow at home.—'Chicago Journal of Commerce,' December 30, 1947.

Ten Commandments Of The Price System

f. o. b. Anywhere On Earth

By the Peripatetic Technocrat

In the November-December, 1947, issue of Great Lakes Technocrat the ten commandments of the Price System were enumerated. Evidence was presented to show how the System obeys its First and Second Commandments. In the last issue, January-February, 1948, the Third Commandment was illustrated. This installment deals with the Fourth Commandment of the Price System. It is: 'Keep the political three-ring circus (executive-legislative-judicial) going full blast so as to divert attention from the scientific approach to social problems.'

Biggest Circus on Earth

The great American three-ring circus (executive - legislative - judicial) first started to perform in the 'mind' of a 17th Century French philosopher, Charles Louis de Secondat, Baron de Montesquieu (1689-1755). He formulated the theory of separating the powers of government into these three compartments. Our 'great American idea of checks and balances' in Government, like the ancient Price System, was imported from Europe.

Montesquieu stole many of his ideas from John Bodin (1530-1596); John Locke (1632-1704); and Giambattista Vico (1688-1744). They were all philosophers and they all lived and died before the steam engine was invented. Montesquieu did not even give his precursors credit for the ideas he stole from them. In his book *The Spirit of The Laws,* in which he expounded his social fictions, he went so far as to write on the title page these words: 'Offspring Born Without A Mother.'

Since nothing in this physical world is born without a mother, we are forced to conclude that Montesquieu wove his theories out of thin air. That is about where he got them from. Representative government, in which the sovereign power resides in the legislature, was unknown in any important state prior to the Revolution of 1688 in England. Thus, his conclusion could not have been based upon any observable phenomena. They were philosophical abstractions. However, this is exactly what the ancient Price System is always looking for, to bolster its superstructure.

Most of the ideologies by which the Price System operates are abstractions. They have little or no connection with the means whereby men live, or the physical relation between those means and the host of social problems arising from them. This attachment to philosophical fictions is a routine part of Price System operations. It is necessary to have social myths for the great mass of people to believe in, to keep them from noticing the actual operations of the System.

They Knew What They Wanted

Among the greatest of these myths in America is the idea that separating the powers of government into three compartments operates in some mysterious way to advance the General Welfare of all citizens. Montesquieu held that this was the only way to secure 'liberty.' He didn't specify what kind of liberty. However, the rising commercial classes of his day saw the point. He meant their kind of liberty.

Montesquieu's social fiction was appropriated and put into use. The 'Founding Fathers' of the U. S. knew well what they were about when sitting in the secret and illegal Constitutional Convention of 1789, they wove Montesquieu's philosophy into the governmental structure of these United States.

Here's what James Madison, 'Father of the American Constitution,' and fourth President of the U. S., wrote in the tenth number of the *Federalist* during the battle over ratification of the Constitution:

> **The first object of government is the protection of the diversity in the faculties of men, from which the rights of property originate . . . the regulation of these various and interfering interests forms the principal tasks of modern legislation. The most common and durable source of factions has been the various and unequal distribution of property. . . . A landed interest, a manufacturing interest, a mercantile interest, a moneyed interest, with many lesser interests, grow up of necessity in civilized nations and divide them into different classes actuated by different sentiments and views . . . What are the different classes of legislators but advocates and parties to the causes which they determine. The causes of factions cannot be removed, we know from experience that neither moral nor religious motives can be relied upon as an adequate control.**

To this Alexander Hamilton added:

> **. . . every institution calculated to restrain the excess of lawmaking and to keep things in the same state in which they happen to be at any given period was more likely to do good than harm.**

'One Out of Many'

The idea of both Madison and Hamilton evidently seems to have been to preserve the status quo. In order to reach this objective, the new constitution had to be designed for that purpose. It was; and here's how they did it.

Charles A. Beard writes in his *'Rise of American Civilization'* that:

> **A few days after they had formally organized on May 3 (1789) the delegates solemnly adopted in the committee of the whole a momentous resolution "that a national government ought to be established consisting of a supreme legislative, executive and judiciary."**

There were other possible styles of parlimentary government that might have been chosen. The self-appointed 'fathers of the Constitution' chose the tripod type for the following reasons, as stated by Beard:

> **Madison foresaw a time, not far distant, when the great mass of the people would be without landed or any other kind of property, when in spite of all precautions a triumphant majority might get possession of the political machine and make it an engine of their purposes to the detriment of the public good, that is, in the main to the detriment of private property.**

Beard states that the delegates were 'frightened by this specter of democracy.' Large property qualifications were proposed for suffrage and the holding of high federal offices. This idea was warmly received but had to be abandoned because 'If each voter or officer was required to possess a large amount of personal property, such as stocks and bonds, then the existing voters, two-thirds of whom were farmers, would not ratify an instrument that disfranchised them.'

'Open Covenants, Openly Arrived At'

It is necessary to remember in all this that the Constitutional Convention was a secret and illegal body of speculators and wealthy property owners, trying to slip something over on the new nation. 'None of the fiery radicals of 1774 was present,' states Beard. Thomas Jefferson was serving

as Ambassador in Paris. Samuel Adams was not elected as a delegate. Tom Paine was in Europe demonstrating an iron bridge he had designed. Patrick Henry was chosen, but refused to serve because, as he said, he 'smelt a rat.' He certainly had a good nose.

The Convention was not only secret and illegal but, in addition, no delegate was permitted to give out any information about the proceedings. No offical record of the debates was kept. So, we do not know what the other side had to say. However, the record shows that 62 delegates were chosen by the States, but only 39 signed the final draft of the new constitution. Beard states that:

> **In their anxiety for security the delegates took every precaution against publicity . . . If a few members, particularly James Madison, had not made notes of the speeches, delivered in the Convention, posterity would never have discovered the real spirit that animated the discussions. And it was not until more than half a century later—after Madison, the last surviving member, had died and his private papers were published — that Americans got a clear insight into the proceedings of the great assembly that had drafted their revered Constitution.**

Now, let's get back to our story. After the proposal for large property and wealth qualifications had been abandoned, it was proposed to establish a landed qualification for voting and holding office. This, too, had to be scrapped because bitter experience had shown that it was always the farmers who had sent 'radicals to the state legislatures and waged the war on the money lenders, merchants, and other holders of personal property.'

Machiavelli To The Rescue

After finding that every proposal advanced for organizing the government contained too much danger for the blessed minority, the delegates finally hit upon a solution. They sent Charles Louis de Secondat, Baron de Montesquieu, to bat for 'good old free enterprise.' Montesquieu knocked out a home run with the bases loaded.

Beard states that:

> **Finding that course barred, the delegates chose another way of dissolving the energy of the democratic majority. They broke its strength at the source by providing diverse methods for electing the agencies of the new government and threw special barriers in its path by setting those agencies, with their several ambitions, prerogatives, and insignia, at cross purposes. In short, the Fathers created a system of 'checks and balances,' dividing the power of government among legislative, executive, and judicial branches with confused and uncertain boundaries. All the world has marveled at their dexterity.**

Yes, Sir! You have to give them credit. They were a slick bunch of free enterprisers, those 'Fathers' of our great Constitution. Their legerdemain with the pure fiction dreamed up by Montesquieu endures to this day. There is not a free enterpriser in the land who does not pretend to a staunch belief in the Constitution as it is said to be. Likewise, there is not a smart free enterpriser in the land who does not know the real purpose behind the great American three-ring circus. That is, what it actually is.

Howard Scott, Director-in-Chief of Technocracy Inc., has observed in The Evolution of Statesmanship that:

> **In the past 200 years, the political leaders of the Occidental world have based their policies on the general propostion that the appearance of acceptance of a popular belief was as necessary as an actual belief in it was harmful. The road to political power of today and yesterday has been paved with the apparent sincerity of all political leaders in immediate popular objectives, combined with the charming cynicism of total inaction toward any objectives save their own, namely, the acquisition of**

the power to administer politically and maintain the status quo of a scarcity economy just enough so that they can take their rake-off from the general drag-down.

His Majesty, The Voter

After all, why not? Whose system of society do you think this is? In other words, who is boss around here? The people? Guess again, brother! We are all existing under the tyranny and regimentation of the ancient (and lousy) Price System of Trade and Commerce. How else could it behave? It must have myths incorporated into its social structure to conceal its flimsy foundations and shoddy construction. The myths of the Price System are many. Most of them are beautiful and appealing on the outside. They have to be. On the inside, however, they are empty. They have to be that way, too.

Harry Elmer Barnes writes in his book Social Institutions as follows:

> A general and popular superstition in regard to the American government is that the individual citizen is able to advance his interests and make his opinion felt in governmental matters. In other words, the government is supposed to be directly representative of the mass of citizens. Those who have made even an elementary study of the processes of American government in the last fifty years know that this conception is only a pious aspiration. It has been very difficult for any citizen or any small group of public-spirited citizens directly to exert effective pressure upon any governmental organization.
>
> Legislation can usually be secured only through advance negotiations with, and approval by, the boss and the machine. Instead of direct government, we have built what has been frequently called the "invisible government," which controls most phases of American political life.

That is exactly why the system of 'checks and balances' was adopted. It checks the majority from making any inroads upon the age-old Price System privileges of the blessed minority. At the same time, it balances (more or less) the conflicting claims and pressures of the groups making up that minority.

Science or Futility

Let us not allow him to escape. No matter how good or bad the government or constitution may be, the General Welfare of all citizens can never be realized under a Price System. Among others, there are two excellent reasons for this. The first is the ancient Price System itself. It is a type of social system organized specifically for the benefit of the blessed minority.

The other reason is that the political method, as such, of reaching social decisions conducive to the General Welfare is futile. It is not a question of parties. It is a question of methods. A skilled carpenter can build a better dog house than a wood butcher. Even a skilled carpenter, however, using the tools of his trade, cannot build and operate an intricate technological mechanism. It's that way with the political method under a Price System. It is a tool, or method, with which to build doghouses for the General Welfare. The modern American social problem is not how to get just a little better dog house than we now have. It is a problem of how to erect a new technological civilization. That is what is required, if we want to realize the General Welfare of all citizens.

For that job the political method is futile. It requires the scientific method, the scientific approach to social problems. Howard Scott, in Science and Society, has observed as follows:

> Here on this Continent where science has achieved its greatest application, where technology has driven these developments to greater heights than in any other part of the world—

here on this Continent. Science is in conflict with society. Science and technology have gone so far that the present social structure of the North American Continent is facing its debacle, its elimination.

The people of this Continent are avid for more scientific and technological information. The application of science in its technological developments is the greatest news and pictorial presentation of the day. The people of this Continent want more science and more technology. They want it now, and not in some far distant mythical future.

Science has nothing in common with democracy, fascism, or communism. Science is antithetical to the moral philosophies of chiseling that underlie these premises of social conduct.

'Let Not Thy Left Hand Know—'

To put it another way, the scientific approach to social problems is now able to do what the age-old political, moral, philosophical approaches could never do. Therefore, a campaign of silence was put into effect by the 'free press' of America in regard to the social aspects of science. You may subscribe to every periodical in the good old U. S. A., (about 20,000) and pore over them until your bifocals burst, and you will find little or no mention of the social aspect of science. In fact, it is hardly even intimated that science has any social aspect. Maybe it's a top secret.

However, just grab any old sheet on any old newstand, and you'll find it plastered full of political, financial and commercial 'news.' There will be straight faced accounts galore of the moral endeavors of sincere damn fools to deodorize some of the worst stinks of the Price System. The philosophical speculations (in vacuo) of stuffed shirts also get a big play in our great 'free press.'

The movies do an able job along the same line. The radio blasts it out ceaselessly night and day. Even that little red schoolhouse, so dear in our memory, dishes out the same thin soup. College professors, bankers, lawyers, economists, polititians, business men, gangsters, and even the hardly less dim-witted unfortunates incarcerated in asylums all sing the same songs.

Any and every school of futility, from the pyramidologists to the social rationalizations of the National Association of Manufacturers, gets its due quota of publicity in the American Price System. Scarcely any drivel is barred, as long as the driveler can pay his way in dollars and cents. When it comes to the social aspect of science, however, an eery silence descends upon the System.

The presses are still. The radio is silent. The movies are blank. The sincere damn fools draw back into their shells. The philosophers flutter from nowhere to nowhere. The professors take off to gather posies in the wildwood. The bankers juggle columns of figures to prove it can't be done. The economists trot forth Adam Smith. The politicians go into a caucus and count noses. The gangsters make hay while the Price System sun is shining. The lawyers sweat before the bar (which bar?) proving with Exhibits A to Z, inclusive, that the social aspect of science is unconstitutional.

While, amidst all this organized confusion, one sound rings clear and unmistakable obove the uproar. Like a metronome, it beats the time in a kind of rythmic rhyme. It sets the pace and calls the tune. That sound is the tinkle of the business man's cash register in the House of Good Old Free Enterprise.

Yea, verily! 'Thou must always keep the great American three-ring circus going full blast so as to divert attention from the scientific approach to social problems.'

Visit To A Chicken Farm

Chickens Get Pecked; Visitors Have Fun

Reprinted from the 'West Pullman Review' of July, 1947

Chickens are not people, but their behavior is surprisingly similar. The scale of social priority in the animal world is determined by animal ability to fight. The scale of social priority in the Price System world is determined by financial ability to chisel. The sale of social priority in the Technate will be determined by biological ability to function for the General Welfare of all.

Suppose every time you sat down to the table to eat you had to wait until the three people who were bigger than you had eaten their fill. And every time you tried to sneak a bite in edgewise you were rewarded by a good swift kick—delivered not by one but all three of your table-mates. About all you'd get to swallow at that meal would be your pride.

This sort of barnyard etiquette is practiced by four rooster and four hens on the Harvester Farm, International Harvester's exhibit at the Museum of Science and Industry in Chicago.

A 'peck or be pecked' philosophy seems to be an accepted behavior among chickens generally — Harvester's fowls having no worse manners than those in any other coop.

Only at the Harvester exhibit, spectators get to observe this social behavior at close range. The chicken exhibit is devoted to demonstrating the social order that chickens establish among themselves.

Peck Order

Known as the 'peck order'—a term generally used to designate such animal social orders—the exhibit consists of two colonies of four one-year-old hens and rooster, respectively. Each chicken is banded with a different color for identification and the public is invited to determine the social caste or 'peck order' by placing colored rings corresponding to the leg bands on numbered posts and then check their observations against those of the museum.

In each colony, one chicken will become the 'boss' and demonstrate his or her superiority by pecking the other members. The Number Two chicken will peck every other member but Number One and so on down the descending social scale. The poor 'sad sack' chicken who becomes Number Four in the 'peck order' can do nothing except develop a frustration complex—he is just a henpecked chicken bum.

He mopes around the roost looking like an also-ran after election day. Frequent peckings have made him bald-headed and, still worse, the absence of his tail feathers gives him a bald spot on his other end. So he gets it going or coming.

His worst tormentor is not the Number One chicken but the Number Two and Three chickens. Drawing a parallel between chicken behavior and our own, it might be said that it is usually the sophomores and juniors who haze the freshmen, and the second and first lieutenants who give the privates the most trouble.

'Nobody knows definitely how or why they stratify themselves,' says Miss Ruth Crosell, chief demonstrator of the farm exhibit. 'Just like people —some assert themselves and some don't Those that don't are led around.

'And as in society, introduction of a new chicken (personality) may cause a complete rearrangement of their 'peck order' (social class).'

Spectators say they can see themselves and their friends (the bossy or the meek and mild) mirrored in the chicken coop at feeding time.

This 'peck order is most observable at feeding time and for that reason the feeding schedule has been arranged for the benefit of the public.

Ed. Note: See picture on page 32 illustrating hen-pecking down on the farm.

'A Man's House Is His Castle'

On Chicago's far north side lake front stands the plush Edgewater Beach Apartments. You get a clear view of beautiful Lake Michigan from the windows.

On Chicago's near north side, in a blighted, slum area, stands a bleak, filthy tenement house. You get a clear view of dirty alleys, garbage cans, and back porches from the windows.

The Edgewater Beach Apartments is a clean, modern, and practically fireproof building.

The tenement house is an old, rickety, rat-infested fire trap.

The living rooms in the Edgewater Beach Apartments are 15 by 24 feet in size. Facilities include in-a-door beds, electric refrigerators, private bathrooms and private kitchenettes.

The tenement house has 9 by 12 feet size living rooms, also used as sleeping rooms. There is no refrigerator, private kitchen, bathroom or toilet. Tenants on each floor share a community kitchen, and toilet-bathroom combination.

The rent at the Edgewater Beach Apartments for a two room apartment is $74.50 a month.

The rent in the tenement house for a 2½ room flat is $90.00 a month.

Mrs. Willa Mae Williams lived in one of the 2½ room tenement flats with her family of six.

On the evening of October 9, 1947 Mrs. Williams left her home to go to work for the second time that day. She had worked all day at one job. Now, she was going to work again. Mrs. Williams found it necessary to hold down two jobs in order to pay the rent.

At midnight that night, while Mrs. Williams was at work, the bleak, filthy tenement caught afire. Ten American citizens were burned to death. The next morning Mrs. Williams identified the bodies of all six of her family at the County Morgue.

The Edgewater Beach Apartments still stands up on the lake shore looking out over the beautiful waters.

Miles and miles of bleak, filthy tenements still stand in Chicago's blighted area.

Mrs. William's family does not exist anymore.

QUESTION—If you were investing money in real estate would you invest in clean, modern apartment houses or in bleak, slum dwellings?

Which investment would return you the greatest net profit?

Don't bother about the answer. We know what it is, the slums. That's the Price System of private enterprise for you.—(Data from the 'Chicago Sun,' October 17, 1947).

* * *

'Estimated total value of all construction during the year, (1947) including heavy engineering work, housing and other factors, was more than $12 billion, year-end totals compiled by 'Engineering News-Record' show . . . Physical volume of construction was actually less than in 1946, despite an upsurge reported during the last four months of the year.'—'Wall Street Journal,' December 27, 1947.

In New York City it is against the law to evict a tenant between sunset and sunrise.

From the Camera's Eye View

Mine of Misinformation

'Give Light and The People Will Find The Way'

A wealthy publisher is credited with advancing the above precept. The idea is allright, but the Price System of private enterprise cannot afford to practice it. If they told the facts about how the system actually operates it wouldn't operate much longer after that. There is scarcely any individual, or organization, in North America that can afford to tell all the known facts about the Price System. They all have an axe of their own to grind first.

Telling all the known facts was not what our wealthy publisher meant. He did not become wealthy that way. Neither has anyone else, ever. What he meant was to retail a lot of trivial items garnished up with 'journalese' so that they resemble social facts. As a result you have to take the 'news' with increasingly large grains of salt. The more important and 'deep stuff' it seems to become the larger the dose of salts you have to take to ward off intellectual constipation.

Now, most people have neither enough time or facilities to dig out the known facts about current social operations. As a result they become like the mine mule in the picture below. Through years of living and working underground, surrounded by darkness, he gradually loses his natural adaptation to daylight. People, under the Price System are the same way. They live and work in a mine of misinformation. Through years of being surrounded by the darkness ('news') put out by the 'free press' they gradually lose their adaptation to the daylight of reality.

There is only one place in North America where correct information about social operations can be obtained. That is Technocracy Inc. Technocracy can afford to tell all the known facts about the Price System. It has no axe of its own to grind and it does not grind axes for any interests in the System. In the pictures that follow we will point out a few facts about current social operations. They have an intimate bearing on the General Welfare of all citizens and, consequently, on the personal life of every individual on this Continent.

U. S. Steel Photo

The mine mule being displaced by belt conveyors. This one at the Robena mine in Pennsylvania delivers 50 tons of coal a minute to the surface. Robena is the world's largest coal mine, scheduled to ship 20,000 tons a day when fully developed. The only way to

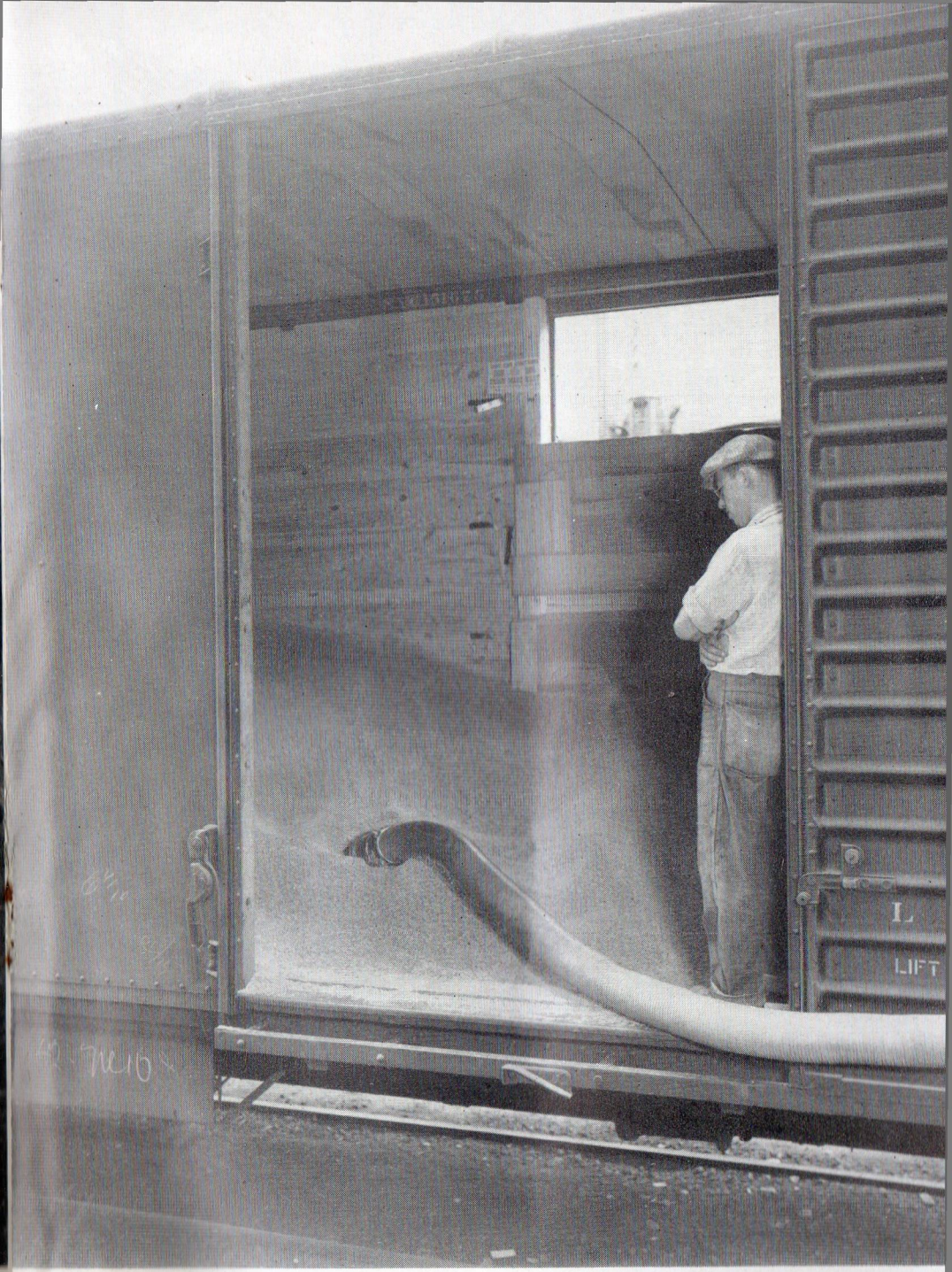
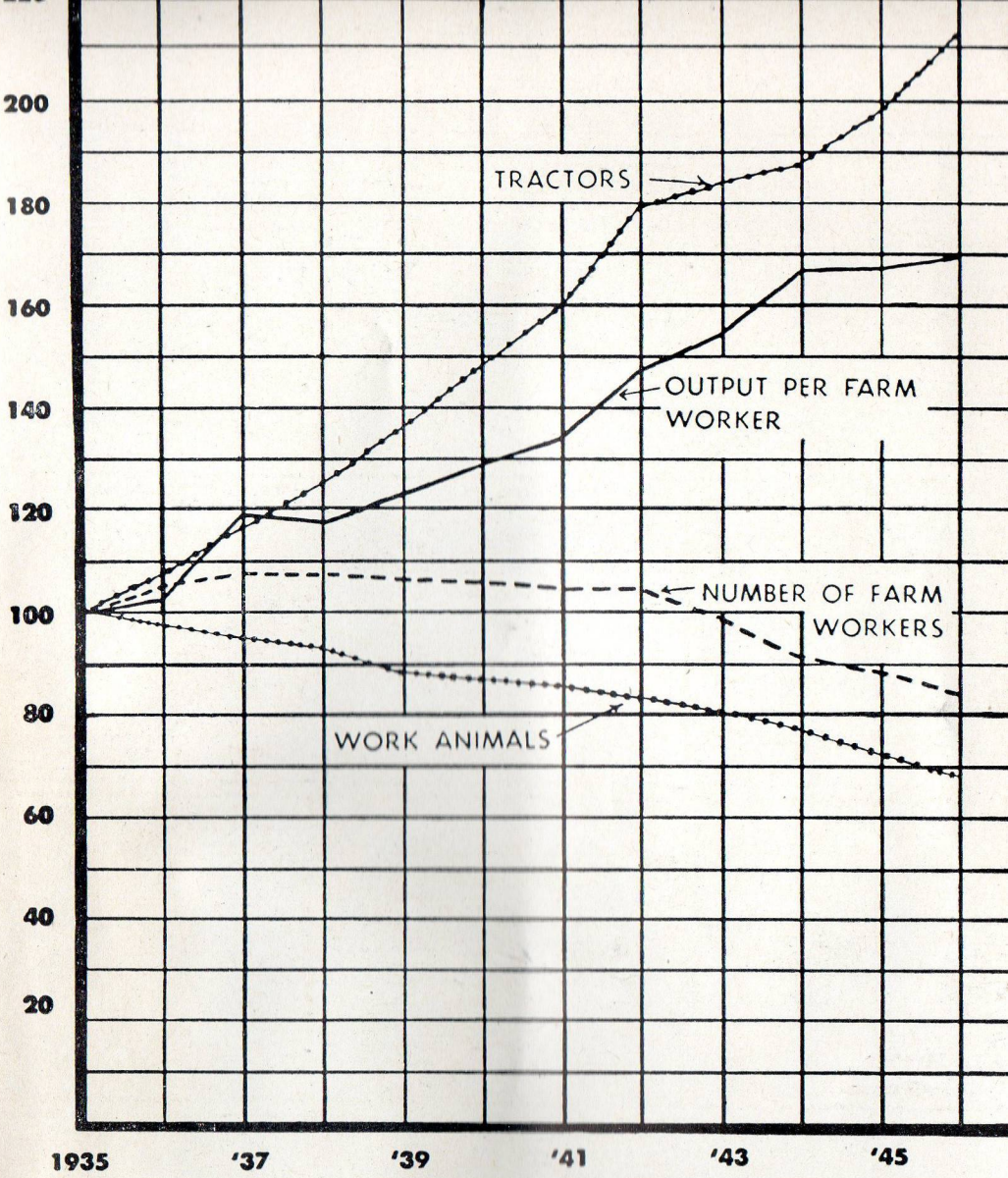


Photo: Dracco Corporation

'Pneumatic conveyors move chemicals, grains and granular materials with a minimum of manual labor.' This one unloads a carload of grain. The man waits on the machine. Outside power does the work. This is the technological method of getting things done. It works in all fields of industry. It will work in the social field, too.

Photo: United Features Syndicate

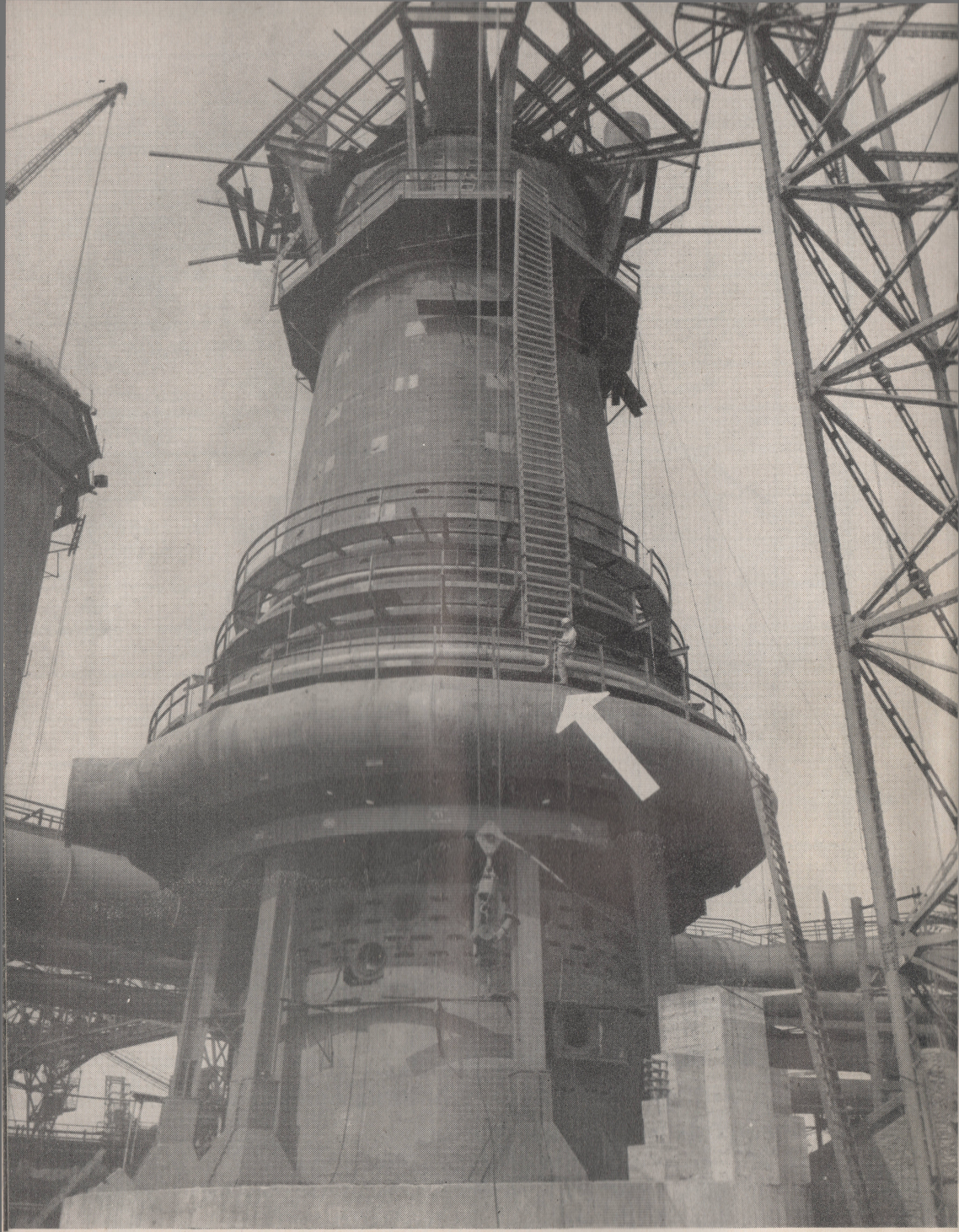
The method of operations here is the political method. It is tested and guaranteed by 7,000 years of failure to produce zero results for the General Welfare. It is idiotic, in a power age to try to apply this method to social problems that will yield only to technology. Even a mine mule has more sense.



This chart shows how output per agricultural worker has increased with mechanization, while the number of workers and work animals has steadily declined.

Photo: Implement and Tractor Magazine

Neither politics or toil could ever abolish scarcity, but technology is doing it. Under the Price System this aggravates old social problems and creates new ones. The System cannot adjust because it's incompatible with science and technology. The key to our future lies in releasing technology from Price System restrictions.



U. S. Steel Photo

This blast furnace has an output of about 1,000 tons of pig iron every 24 hours. The large encircling pipe carries hot air to the furnace at the rate of 90,000 cubic feet a minute. Boosting volume and pressure of air increases production up to 20 percent wtih no extra man-hours. That's the technological way to boost production.

Photo: Weirton Steel Co.

Strip steel rolling off the world's fastest cold-reduction mill at the rate of almost a mile a minute. The reel holds five miles of strip steel. This five-strand mill produces 400 miles of strip steel in 8 hours. North America's technology has reached a stage that invalidates the Price System. What can be done about it?

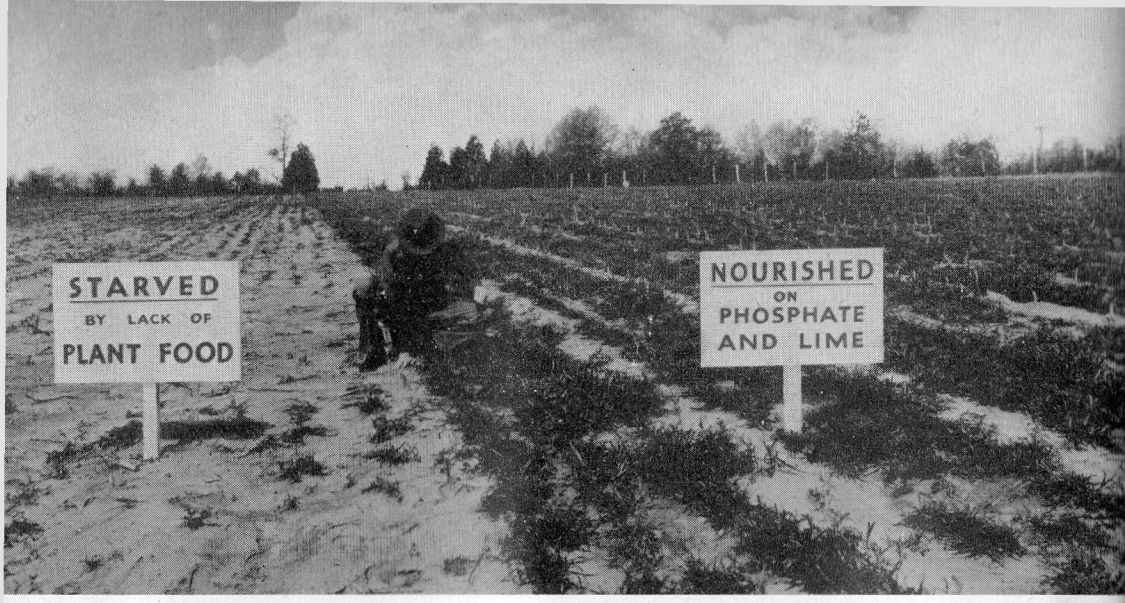
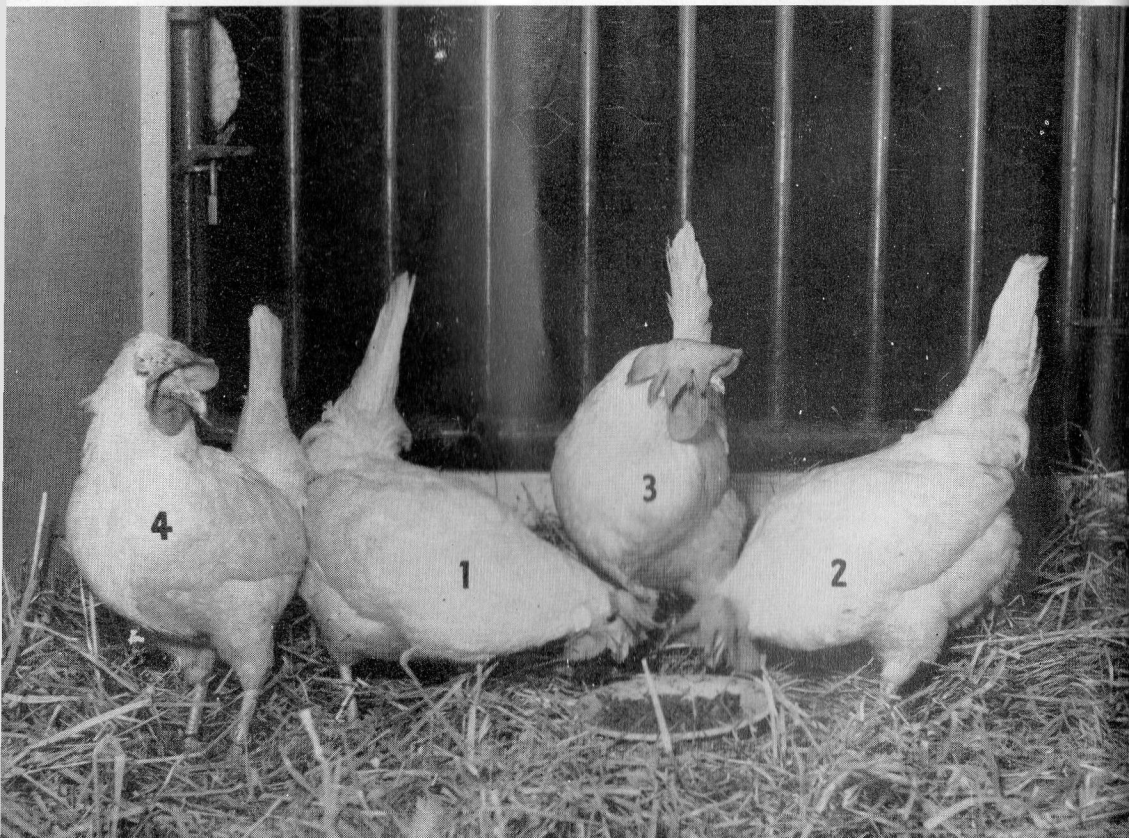


Photo: U. S. Dept. of Agriculture

Plants are stunted by lack of food. Men are stunted by lack of physical knowledge. Civilizations are stunted by lack of goods and services. Abundance will solve social problems. Technology can provide abundance. The signs all point one way. The Price System must go. There is no other answer to our social dilemma.

Photo: International Harvester Co.



Flashes of American History

X. An American Engineer Builds the First Electric Power Station

By Ben H. Williams, 8141-15

Simple Things Came First

Primary research into the 'mysteries' of electrical phenomena extended over a long period of time before bringing any concrete results. Many noted scientists from all parts of the world, and many more unknown investigators, contributed to that fundamental research.

Ancient Greeks of the Age of Pericles amused themselves watching the reaction when pieces of amber (electron) were rubbed together. In the 18th century, Benjamin Franklin, during a thunder-storm, touched his finger to a key on the end of his kite string and drew a spark, thus identifying lightning as a form of electricity. Later in the same century, Galvani experimented with an electric charge on severed frogs' legs and noted their 'vital' movement. Early in the 19th century. Oersted touched an electrically charged wire to a compass point and produced a magnetic field. Still later, Faraday produced an electric current by thrusting a magnet into a coil of wire connected with a galvanometer.

'The experiments of Oersted and Faraday,' says the National Encyclopedia, 'established the fundamentals of electromagnetism. Wherever electricity is in motion, magnetic fields will be produced; wherever the magnetic flux linked with a coil varies, electromotive forces will be induced. On these principles are based all of the modern electric light and power developments.'

Advance in Electrical Engineering

Following these and other laboratory experiments tending toward precision measurements of quantitative relationships, there came in quick succession instruments for the transmission and control of electric power. The telegraph, devised and made workable by Morse in 1844, was greatly improved by his successors in that field of engineering. Batteries, generators, dynamos, motors and other devices extended the scope and flexibility in the use of electricity as applied to production, transportation and communication processes, paving the way for modern mass production methods. American engineers contributed more than their share to these great achievements.

Among these American engineers one genius stands out in the popular esteem above all the rest. Born just two years after Morse's epoch-making achievement with the telegraph, Thomas A. Edison was destined not only to become an expert operator of that instrument, but also to contribute to its efficiency as a means of communication. Edison, however, did not confine his amazing energy and inventive abilities to communication, although his incidental improvements of the telegraph and also of the Bell telephone brought those devices far along the way toward their present standards of efficiency.

Edison Achieves the 'Impossible'

Edison was one of those rare geniuses who are always attempting the 'impossible.' So, about 1877, having brought into practical use one 'impossible' device — the phonograph or speaking machine—the great inventor

began concentrating on the pressing problem of an adequate artificial lighting system. Edison perceived that the existing gas and arc lights were inadequate and would soon become a check upon future progress. Someone must produce an electric light that would not flicker like the arc light; that could be used with safety anywhere indoors or outdoors. Such lights must be strung on a circuit in which the current of electricity would be subdivided or diverted, making each light independent of all others, so that the turning off or burning out of one would not affect any of the others on the same circuit. Subdividing or diverting the current in this manner was considered impossible by leading scientists and engineers of the 1870's. The electric light of Edison's conception must be one in which some kind of filament is brought to incandescence in a transparent or glass bulb from which the air had been extracted. This latter concept was not new, however.

By means of his 'multiple arc' circuit Edison solved the problem of the subdivided current, thus securing the independence of each light on the circuit. He then began his romantic search for a suitable filament for his incandescent lamp. Metallic filaments were tried, but those known at that time proved to be fusible at too low temperatures. Having succeeded in producing very high vacua through his experiments, Edison then went back to his favorite material, carbon. 'On October 21, 1879,' say his biographers, Dyer, Martin & Meadowcroft, 'after many patient trials, he carbonized a piece of cotton sewing thread bent into a glass globe from which he exhausted the air until a vacuum up to one-millionth of an atmosphere was produced. This lamp, when put on the circuit, lighted up brightly to incandescence and maintained its integrity for over forty hours, and lo! the practical incandescent lamp was born.'

According to these same authorities, Edison then 'began to carbonize everything in nature that he could lay his hands on,' and 'in these experiments at that time and later he carbonized, made into lamps, and tested no fewer than six thousand different species of vegetable growths.' In this meticulous manner having discovered in bamboo a superior material for his filament, Edison sent explorers into the jungles of South America, Asia and Africa in search of the best possible species of that plant for his purpose. The 'giant bamboo' of Ceylon was found to stand the highest test as a carbon, and was used for some time for filaments in the Edison lamps, until superior metallic filaments replaced them.

The Initial Electric Power Station

Edison's engineering problem had now reached an order of magnitude not only requiring quantity production of light bulbs, and other fixtures, but also the installation of power plants for the wide distribution of the electric light into homes, offices and factories. Prime mover equipment was available along with generators, dynamos, motors, etc. But there remained the problem of underground installations in place of overhead wires, requiring among other difficulties the invention of new and unprecedented devices which, in the experimental stage brought many distressing failures before the engineers finally attained success.

On September 4, 1882, Edison put in operation the first electric power station in America on Pearl Street in New York City. Before the end of December of that year his station was supplying over two hundred and forty customers whose buildings were wired for over 5,000 lamps. Two years later the number of lamps in service at any one time had increased to more

than 11,000.

Thus, a half a century only after Faraday's laboratory discovery of the relationships of electromotive forces, the application of those fundamentals of electromagnetism had paved the way for the subsequent fifty years, expansion in the use of electrical energy.

Although he employed laboratory methods and used many assistants, Thomas Alva Edison stands out in bold relief as the last of the great 'empiricists.' His methods and achievements mark the dividing line between the 'trial and error' techniques of the old-time individual inventor and the more precise and predictable methods of today's research and engineering. While the Power Age owes an immense debt to Edison, the modern use of power in its diverse applications tends toward the merging of genius and talent under a unified and coordinated system that must bring its continued and greatest expansion through the Continental Research and Engineering Departments of the American Technate.

Meanwhile, it will be interesting to note some of the social changes and behavior patterns following the impact of Technology upon the American Price System in the latter part of the 19th century.

My next 'Flash' will treat of this in relation to a great engineering feat. The title: 'Uncle Sam's Gold Spike.'

Reference: Dyer, Martin and Meadowcroft, 'Edison: His Life and Inventions.' Harper & Brothers, New York, 1929.

Physical Approach; First Steps

'Development of a "LITTLE TVA" is under way in west Florida and south Georgia. It is a project for navigation, electric power, flood control and recreation facilities on the Apalachicola River and its principal tributaries, the Chattahoochee and Flint Rivers . . . The project will provide a nine-foot depth for navigation from Apalachicola, Fla., mouth of the river to Columbus, Ga., on the Chattahoochee, and to Bainbridge, Ga., on the Flint River. Four main dams are to be built and three of them will contain power plants having an initial installed capacity of 140,000 kilowatts and an ultimate capacity of 237,000 kilowatts.'—'New York Times,' December 21, 1947.

Construction has been started on an eight mile canal across a bend in the Mississippi River just above St. Louis. The canal will be 300 feet wide at the bottom and 500 feet wide at the top. The purpose is to by-pass the dangerous seven mile long chain of Rocks Reach north of St. Louis. It will remove the last major obstacle to navigation in the 1,100 river miles from Minneapolis-St. Paul to the Gulf of Mexico. It will permit the passage of longer tows than now in service on the river. At the southern end of the canal two locks will be built. One will be 600 feet long and the other 1,200 feet long. These locks will make a total of 27 on the river between Alton, Illinois and the twin cities. When completed there will be a nine foot clear channel from New Orleans to Minneapolis.—From 'New York Times,' November 23, 1947.

'To solve a modern problem or to understand a fact in history one must use geography. To see clearly and to understand how men utilize their environment, one must know something of the industrial practices and customs that have grown up among them during long periods of their history.' Miss Helen Hay Heyl, chief of the Bureau of Curriculum Development of the New York State Educational Department in a recent "supervisory letter." (As quoted by the 'New York Times,' August 31, 1947.)

Primer of Technocracy

Why Technocracy?

By Henry Elsner, Jr., 8342-1

'By settled habit the technicians, the engineers and industrial experts, are a harmless and docile sort, well fed on the whole, and somewhat placidly content with the "full dinner-pail" which the lieutenants of the Vested Interests habitually allow them. It is true, they constitute the indispensable General Saff of that industrial system which feeds the Vested Interests; but hitherto at least, they have had nothing to say in the planning and direction of this industrial system, except as employees in the pay of the financiers . . . But it remains true that they and their dear-bought knowledge of ways and means—dear-bought on the part of the underlying community—are the pillars of that house of industry in which the Vested Interests continue to live. Without their continued and unremitting supervision and direction the industrial system would cease to be a working system at all; whereas it is not easy to see how the elimination of the existing businesslike control could bring anything but relief and heightened efficiency to this working system.' (Thorstein Veblen (1875-1929), in his book THE ENGINEERS AND THE PRICE SYSTEM.)

The Ghost That Will Not Down

As the centuries-old structure of our social tradition disintegrates under the onslaught of modern science, the people caught in the midst of this profound change are an uncertain, confused and pathetic mass. We do not comprehend what is happening to our private little worlds which are shifting daily before our weary eyes. We are seeking a 'way out'; we don't know where we are going, but we know we must turn to some one, somewhere, for leadership. As a result, organizations by the thousands are springing up and attracting their converts. New religions, new philosophies, new bodies of economic and political thought are born every week. The State of Illinois alone has several thousand chartered organizations concerned with economic, political and social reform. But the net result of all this is only to further confuse the already muddled Mr. American. Can we expect leadership from those who are either making the most of our confusion to get a hand in our pocketbooks, or those who have cracked under strain and become fanatics of one kind or another in their retreat from reality! Can the blind lead the blind!

Fourteen years ago, in a time when many of our readers may recall that the skies looked black indeed,a word appeared in the headlines of newspapers and magazines around the world. The word was but one of many names of groups which had risen in the time of national fear. The word was 'Technocracy.' Flashing into brilliance for a few short months, the word was soon lost to public attention and shortly forgotten. The people were told that Technocracy had failed, was a hoax, had muffed a chance, was just another crack-pot group. The press, the radio, the 'powers-that-be' said funeral services for Technocracy, albeit with little grief. Today Technocracy is the liveliest corpse the world has ever seen!

Other groups have risen and fallen, with perhaps a caustic sentence in a history text to mark their passing. Technocracy is still here today; it is not quite correct to say 'has remained,' for Technocracy has not become static or lost ground, but has grown to ever greater scope while other organiza-

tions have withered and died. Technocracy has come through a great depression, a world war, and post-war confusion more healthy and dynamic than before. This is not a wildeyed boasting, but a factual statement. We challenge you to check Technocracy's record with that of any other organization on this Continent.

Why has Technocracy forged ahead as it has, in spite of the apathy of the American people and the planned silence of nearly every agency in the land? If you cannot answer this question, you are in no position to condemn Technocracy, nor dismiss it by saying you 'know all about it.'

'Properly Ordered and Rock Solid'

The answer is quite simple and also quite evident. Technocracy, alone, is based on the solid rock of factual scientific analysis and synthesis. All other organizations of the past and present have been based to a greater or lesser degree upon the accumulated superstitions, opinions and wishful thinking of 5,000 years of 'civilization.' These are the very ideas that are being smashed to a billion fragments by 20th century science and technology. This is why Technocracy alone has continued to expand as it presents the solution to the problems of today: Technocracy is in tune with the physical facts of the times in which we live.

A fact is defined as: 'A close agreement of a series of observations of the same phenomena.' Let us examine this statement closely, for the establishment of facts is the basis of the scientific method, and hence of Technocracy's method of social analysis. 'Observation' is the key word in the definition. When scientists determine to investigate a subject, they do not do so by gathering together all the written material on the subject by 'authorities' and then mixing a portion of each to form their own opinion. If such was the procedure of science none of the ancient theories which were so dearly held would ever have been disproved. True, scientists refer to the works of those who have preceded them, but they do so not to form a conclusion, but to check the methods and repeat the experiments performed by these men. The scientist then makes his own original observations of each phase of his problem, not once, but many times. If these observations agree, he may have hit upon something in the nature of a fact.

Here it must be mentioned that all facts must be susceptible of confirmation. For example, a French astronomer of some renown claimed to have seen the planet Vulcan several times. Because to date other astronomers have not confirmed his observations, the existence of Vulcan is not regarded as a fact.

Science, in view of some thousands of years of recorded history, has come only recently into existence. One after another, areas of thought once under the rule of opinion, philosophy and superstition have been invaded and conquered by the methods of factual observation and analysis. Today, only one major field remains unconquered by the methodology of science: the so-called 'social studies.' The relationship between man and other men and between men and their physical environment is still a ripe field for numerous studious opinions and learned ignorance.

Pioneer of The New America

Technocracy is advancing the frontier of science to this last stronghold of the past. Technocracy uses the same analytic and synthetic processes on the world of today as the scientist uses in his laboratory. Technocracy uses these methods not on a beaker of chemicals or a cage of white mice, but upon an entire Continent, and

upon those aspects of the rest of the world which affect this Continent. Some of the findings of Technocracy aren't particularly well-liked, even by Technocrats; but what we like and what we don't like about the world around us doesn't change the fact of its existence. Technocrats have learned to face the facts and follow the facts, regardless of whether their previous conditioning causes them to like or dislike these facts.

Why all this insistence on facts and rigorous scientific methods? The answer to that question is the very reason for Technocracy's inception and continued existence. For the past one-half century the futilities of economists, politicians, and statesmen have continued unabated; while physical, technological trends have gained in momentum and magnitude. The latter will shortly render the former and their theories as obsolete as the A-bomb made the time-honored tactics of Julius Caesar.

Events are forcing us to realize that mankind no longer can be a part-time scientist. Our condition today has been likened to that of an ape set loose in a laboratory full of lethal apparatus. The last century has witnessed the birth of the automobile, airplane, telephone, radio, television, submarine, radar, mass production and mass destruction. These were born and reared through the use of science and technology, but are controlled and used for mankind's 'benefit' through the practice of only superficially modified medieval social controls. This situation cannot long continue. The instability created by the clash of these two opposite methods has reached the order of magnitude wherein a breakdown of one or the other is imminent. Either we must assume the responsibility of installing scientific social controls commensurate with our technological development, or our science and technology will destroy us. You are probably thinking of the atomic bomb; but in terms of immediate probability and consequences, there is nothing quite so threatening to our existence as the disruption of our industrial machine.

We eat and are clothed only because of the continuous operation of our production and distribution technology. What will happen when this complex organization upon which we are so dependent is shut down because our antiquated social system cannot operate it? You can answer as well as I. This is why Technocracy is here today: *to prevent total shutdown by the only means possible, installation of a scientific method of social operation.*

Technocracy has analyzed the situation today and provided a scientific synthesis. Investigate Technocracy, it's program, its organization and its method of analysis. Then, you will understand the urgency of Technocracy's appeal. Join Technocracy today and help science overcome social chaos in America; or let your apathy dig your grave tomorrow. The choice is yours alone.

'There are plenty of reasons for working besides money. One reason is to get ahead of other people and thus win social approval or prestige. Another is to satisfy yourself that you can do the job. Another reason, paradoxically, is to reduce work. I mean persons who devote their effort to finding labor-saving devices. They appear to be against work, but they can't stop working themselves.—Daniel Blaine, Chief, Neuropsychiatry Division, Veterans Administration. (As quoted by the 'American Veterans' News,' October, 1947.)

Technology Marches On

Everywhere You Turn

By Research Division. 8741-1

Slot Machine Free Enterprise

There are about 2,500,000 merchandise and service vending machines in the U. S. and the industry is expanding. Some 2,000 manufacturers of these robot merchants recently held an industry show at Chicago. Many types of new vending machines were shown for the first time. Two innovations were noted at the show. First, the increasing versatility of vending machines; Second, the improved controls and coin-changing devices.

Such items as peanuts, candy, cigarettes, gum, etc., and such services as weighing, parcel and rest room locking have been vended by machines for years. In fact, machines peddling these things number about 1,500,000. Now, however, the industry is invading the retail field on a wide front. Machines, either already in operation or designed, were shown at the Chicago show which can vend the following: Popcorn, soft drinks in cups, hot and cold coffee, with and without cream and sugar, nylon stockings, shoe shines, milk, hamburger sandwiches, also cheese, and a long list of other

Among these are: Packaged ice, paper towels, postage stamps, books, cold bottled beer, salads, sun glasses, fresh fish, phonograph records, apples, soap, hot chocolate, sunburn lotion, seeds, string, gloves, sun hats, fertilizers and insecticides. New controls eliminate the traditional lever and operate by push puttons. Multiple coin changing mechanisms are included to increase robot sales. The *Chicago Journal of Commerce* for December 17, 1947, states that:

> **. . . the big distributive development in the next decade is the establishment of completely automatic retail stores, . . .**

In conclusion, the *Journal* states that men in the industry say they can devise machines 'which can do everything the human retailer can do except take an order over the telephone.'

'No Tickee, No Washee'

A new technological method is creating a revolution in the 14,000 commercial laundries in the U. S. One of these laundries is operated by Howard Fink at Kenosha, Wisconsin. He worked out the new method which is already installed in dozens of large laudries and is being introduced rapidly. It is called centrifugal washing.

In the old-fashioned laundry, clothes are washed in machines in large batches at one time and later resorted from tags attached to the pieces, into individual customer's bundles. It takes from 60 to 90 minutes to finish a batch. Harsh soap and chemicals are used in the machines. After washing, the suds are poured off and the clothes rinsed. The last process in a standard laundry is to extract excess moisture in a large centrifuge.

Fink's idea was to combine the rinsing and drying in the centrifuge in one operation. While the centrifuge whirls, rinse water is forced in by special spray nozzles in the cover. One operation is eliminated and four batches of laundry can be finished in the time formerly used for one. Also, the laundry comes out much cleaner, thus eliminating the standard blueing and souring baths. Because smaller

batches can be washed at a time, this eliminates resorting. Besides this, by the industry's standards for loss in tensile strenth, dirt removal, and whiteness reflectance, the new method rates higher.

Operations data show, by the centrifugal method, a dirt removal of 99.5 percent, a whiteness reflectance of 97.5 percent, and a cut in loss of tensile strength from 10 to 5 percent. Monsanto detergents are used instead of soap, and the *Monsanto Magazine* for December, 1947, states as follows:

> **Much expensive machinery and hand labor went into the discard . . . Shirts that could previously stand 100 washings could now go through 200 washings as easily.**

Mr. Fink says of his method:

> **When we install this method in an ordinary plant, the owner does not have to buy any new major piece of equipment. And when we finish, he has more equipment in the alley than he needs in the plant itself.**

Coin-In-Slot-Laundries

About 2,000,000 American families are now taking their washing to slot machine laundries where automatic washing, rinsing, drying machines do the work. About 37,000 of these machines are in operation now. They are set up in vacant stores in batteries of 10 to 20 machines and are called laundry shops. People bring their laundry in bags and pay for use of the machine, plus washing powder and bluing. A nine-pound washing is completed in 30 minutes at a charge of 25 cents for use of machine. Two firms are sponsoring the self-service centers on a national scale. At the end of 1947 there were about 2,500 laundry shops in the U. S. and the number was growing rapidly. (*Chicago Tribune,* October 26, 1947.)

Back To What Farm?

'With modern mechanization a farm or plantation requires only one-sixteenth the normal manpower, it was affirmed in a study conducted by the New Holland Machine Co., New Holland, Pa., according to its President, Irl A. Daffin . . .

'Use of several types of harvesting implements, including the New Holland flame throwing "Sizz-Weeder" to burn out damaging weeds, has cut the labor force on one plantation at Waugh, Ala., from 65 to 4 men. Weeding crop-rows is one of the most costly labor operations in agriculture.

'Colonel Price C. McLemore, who has been cooperating with New Holland in this experimentation, this year will raise 300 acres of cotton; 100 acres of oats; 100 acres of corn; and 125 acres of grain sorghums, using only 4 men. Total acreaage is 725 . . .

'Statistics compiled by Col McLemore and New Holland researchers, according to Mr. Daffin, reveal that with full mechanization, cotton can be produced for 9 man hours an acre, compared to 235 hours by hand.' (*New Agriculture,* September, 1947.)

If It's Pipe You Want

Seamless steel pipe can be turned out at the rate of 2,000 ft. per min. by a new continuous process developed by the National Tube Co., a subsidiary of U. S. Steel Corp. In the new process, the initial piercing of the white hot solid steel bar is the same as in the conventional process. The tube is then completed by passing it through a nine-stand continuous straight line rolling mill which combines in one operation the separate steps of the usual forming procedure. The first continuous seamless pipe mill, which will be installed at the company's Lorain, Ohio, plant, will make small size seamless products ranging in size from 2-in. boiler tubes to 4½-in. standard pipe. (*Iron and Steel Engineer,* Sept. 1946.)

'Gandy's Dancer's' Blues

The Pullman Company has developed a machine to speed up and improve railroad roadbed rebuilding. One of these machines, with a crew of five, can do the rebuilding work of more than 500 men. The machine is a track ballaster and tamper. This work has always been done by hand labor heretofore. Every railroad has section gangs who keep the roadbed in repair along a certain section of line. In addition, every railroad employs large gangs, called 'extra gangs' in the summertime, to keep roadbeds in condition. The work consists of replacing old ties with new ones, straightening twisted and tipped ties, and forcing ballast (stone, gravel, or cinder) under the ties for a firm foundation.

A gang of 48 men can cover about 500 feet of track with pick and shovel, in one day. The new machine rebuilds roadbeds at the rate of a mile a day. The New York Central has 23 of the units in operation, and other roads have them also, or have them on order. In describing the unit *Business Week* for December 20, 1947, says:

> **The ballaster has a 5,250-lb. crosshead bar that spans the length of the tie. Attached to the bar are 32 tamping shoes. A 100-hp. gasoline motor raises the bar. It drops with pile-driving action into the roadbed rock. The shoes squeeze the ballast underneath, shove the tie straight.**

The ballaster moves along the line under its own power and will remove itself off the track to one side in three minutes, also under its own power. In describing this operation, the *Chicago Tribune* for December 10, 1947, says:

> **The machine has four compressed air cylinders, two at each end of the machine. When the air is turned on, each unit forces a horizontal bar onto the rails, causing the machine to rise. While the ballaster is in this position workers slide rails under the two wheels beneath each end of the car. These are at right angles to the regular running wheels. Then the machine moves sideways off the right of way under its own power.**

'Work and Pray, Live on Hay'

Dr. Henry Borzook, biochemist of the California Institute of Technology has developed a formula for a complete, balanced meal that can be put on the table at a cost of about three cents. It is a preparation of soybean grits without oil, 'onion powder, food yeast, salt, herbs, spices, vitamins and minerals.' The formula contains 42.3 percent protein, 35.5 percent carbohydrates, 4.51 percent fat, .46 percent calcium, and .0123 percent iron.

The preparation is called Multi-Purpose Food. One two-ounce portion is said to equal a quarter pound of beef, a glass of milk, and a serving of peas and potatoes. MPF looks like brown rice. It is shipped dry in cans, and can be cooked in 10 minutes. Private relief agencies have shipped 4,000,000 meals abroad. However, the government is not interested in MPF to feed the hungry millions of Europe, despite the fact that it can be bought for 3 cents per 2-ounce portion, freight paid.

In commenting on this, Dr. Borzook said: 'They wanted grain and meat shipped abroad.' He declined to elaborate, saying: 'I don't want to become involved in any politics over this thing.' Dr. Borzook has not taken out a patent on MPF. Anyone can make it. However, he has a plant at Gilroy, California, with a capacity of 10,000,000 pounds a month. The *New York Times*, for November 30, 1947, in reporting on MPF states that Dr. Borzook believes the lack of official acceptance of MPF 'is due to the influence of farming interests.'

Technology To The Rescue

Before the U. S. went into the sky-high artificial prosperity of this post-war period, life was simpler for the butcher. Now he has to be a minor mathematician, as well as a meat carver. The reason is that meat prices have gone so high that his prewar computing scales are no good anymore. They computed up to only 75 cents a pound. With hamburger costing that much now, and better cuts up in the stratosphere, the butcher has to indulge in mental gymnastics to compute prices.

This unusual strain on the butcher's cerebral capacity caused him to complain loud and long to the scale manufacturers. So, they got busy. Now they have turned out new replacement charts for the old scales. The new charts read up to $1.70 a pound. Wow! There are about 80,000 figures on the new charts. So, if they can't get you under one figure, you're sure to get hooked under another. The odds are just about 80,000 to one that John Q. (Sucker) Citizen will ever get a break under the Price System.

Picture of 'Prosperity'

The Department of Commerce recently released comparative figures on production as between 1947 and 1939. Some items compare as follows: Radio sets, 1939—10.5 million; 1947—17 million; Vacuum cleaners, 1939—1.1 million; 1947—3 million;; Refrigerators, 1939—1.9 million; 1947—3million; Washing machines, 1939—1.4 million; 1947—3.5 million; Trucks, 1939—636,000; 1947—1.2 million; Rayon, 1939 — 380 million pounds; 1947—960 million pounds; Cotton cloth, 1939—9 million square yards; 1947—11 million square yards; Wool cloth, 1939—321 million linear yards; 1947—450 million linear yards; Wheat, 1939 — 741 million bushels; 1947—1.4 billion bushels; Beef, 1939—7 billion pounds; 1947—10.5 billion pounds;; Pork, 1939 — 8.6 billion pounds; 1947—10.3 billion pounds; Coal, 1939—395 million tons bituminous; 1947—610 million tons; Oil, 1939—3.5 million barrels daily; 1947—5.1 million barrels daily; Electricity, 1939—128 billion kilowatt-hours; 1947—305 billion kilowatt-hours; Cigarettes, 1939—181 billion; 1947—365 billion; Candy, 1939—2 billion pounds; 1947—2.7 billion pounds; Ice cream, 1939—3 billion pounds; 1947—7.5 billion pounds Paper and paperboard, 1939—13.5 million tons; 1947—21.1 million tons; Tires, 1939—57.5 million; 1947—90 million.—Data from 'Wall Street Journal,' December 31, 1947.

'Despite two years of high national income since the end of the war, government, federal, state and local, is burdened with a vast relief problem. That problem is growing more complicated; moreover, the cost of relief and social security is steadily increasing and relief techniques are changing as government assumes more responsibility for those in need. Today some 11,000,000 people are receiving some form of government assistance. (Lightface ours) . . . Since the war ended monthly payments to these people have increased 125 percent, from $225,000,000 in August, 1945, to about $500,000,000 in July, 1947. Yet there are more men and women employed now than at any previous time in the nation's history.'—John J. Gorson, Director of the Old Age and Survivors Insurance Bureau of the Social Security Board, in an article in the 'New York Times Magazine,' December 28, 1947.

'Buried in a mass of statistical information are cold figures showing that more than 1,500,000 veterans still are "doubling up" with friends or relatives. A total of 5,000,000 families, veterans and non-veterans, are estimated to be doubling up, that is, sharing quarters intended for a single family.'—'Chicago Sun,' November 8, 1947.

Technocracy and Your Trade

The Plastics Products Industry

By Organization Division, 8741-1

Something 'Nature' Couldn't Make

The base of the plastics products industry was laid in 1868, when John Wesley Hyatt, an American printer, contrived a mixture of cellulose nitrate and camphor, called celluloid. Three years later he and his brother Isaiah were granted a patent on a heating cylinder for the extrusion of celluloid. The first, crude molding machine for utilizing Hyatt's discovery was built around 1880. According to the Monsanto Magazine for October, 1947, this machine is now in a plant at Kingsport, Tennessee. It still runs.

In 1909 another American, of Belgian descent, Dr. L. H. Baekeland, put together a mixture of phenol and formaldehyde, called bakelite. Thus, came about the two important families of the plastics world, the thermoplastic and thermosetting family. Today, the industry has 25 'basic types of material at its disposal, certain ones of which have 50,000 possible formulations.' (Monsanto Magazine) The two chief types of plastics are the thermoplastics which harden when cooled and can be reheated and used again. The other type, thermosetting, cannot be reheated. Both are formed under heat and varying degrees of pressure.

All plastics are synthetic, organic materials, made from chemicals derived from coal, oil, cotton, limestone, sulphur, phosphorous, etc. Different plastics 'can be made flexible or stiff, rubbery, solid, or foamed.' This variation is accomplished by the addition of chemicals, called plasticizers. These modify the properties to fit almost any specifications. For instance, polyvinyl chloride resin and a plasticizer in varying amounts will produce either floor tiling, shoe soles, leather-like upholstery or raincoats.

The materials from which plastics products are manufactured come from the chemical industry. In 1929 total production of all types of plastics material was 55,000,000 lbs. In 1947 it ran around 1,600,000,000 lbs. This is rather small, compared to steel or aluminum production. However, one pound of plastics will make as much finished products as four pounds of steel or two pounds of aluminum. Monsanto Magazine, from which the above data and quotes came, states that: 'From this weight-to-strength advantage will come much of the future expansion of the industry.'

'New Kinds of Things'

The Monthly Labor Review, for September, 1947, to whom we are indebted for all data and quotes used, unless otherwise specified, separates the pastics field into three divisions. There is, first, the materials manufacturing end, which is the chemical industry. It furnishes molding compounds in powder, granular and flake form, impregnating resins, and sheets rods, and tubes to the other two divisions of the field.

The second division is composed of the plastics fabricators. These manufacturers make plastic products but they are not considered part of the plastics products industry. The reason is because they also work with wood and metal. Plastics come rather as an addition to their regular line than as a primary product. There are about 2,000 plants fabricting plastics, but

the number of plastics jobs is much lower than in the plastics products industry.

The third division of the field is the real plastics products industry. These are the plants that make molded and laminated plastics articles and parts for sale. These consist of a growing list of vari-colored products, such as spoons, lamps, compacts, combs, knobs, dishes, toys, musical instruments, fountain pens, highball twizzle sticks, consumer gadgets, etc., etc. You'll find the line piled up on dime store counters and in department stores from coast to coast.

New Industry—New Technology

'Less than half of the plastics materials, however, go into these products,' says the Bulletin. The greater part of all plastics goes into volume industrial use as 'paints, coatings, adhesives, brake linings, and grinding wheels.' The automobile industry uses about 9 lbs. of plastics per car. The aviation industry, the electric appliance industry, radio and many others, use large amounts of plastics materials. Some of these industries have plastics departments of their own. In 1947 the automobile industry alone used almost as much plastics as the entire production in 1929.

'At the end of 1946, there were about 800 plants in the plastics products industry.' In addition, there are somewhat over 200 plastics departments in other industries. In the combined field, there were about 65,000 employees. Most of the plants are small due to the newness of the industry, and the ability to operate small plants efficiently. This latter characteristic arises from the advanced technology in use in the industry. The Bulletin states as follows:

> **Plants range in size from those which are run by their owners without help to a few large establishments with over 1,000 employees. In 1939 more than half of all plants had less than 50 employees. During World War II and thereafter, the older established companies tended to become larger. On the other hand, most of the new plants which have opened up within the last few years are still comparatively small.**

Plastics products are machine products. What little hand work there is 'comes in mainly in the finishing and inspection of the products.' Most of the machines used are largely automatic in operation. The Bulletin adds: 'Quantity production is the rule even in the smaller plants. Typically, large numbers of each item are turned out.'

Types of Operations

The two main methods of shaping plastics are molding and laminating. There are four kinds of molding: compression, transfer, injection, and extrusion. Laminating is the process of bonding together plastic impregnated sheets of fabric or paper under heat and pressure. The Bulletin states that over half of all molded plastics are made by the compression method.

Compression presses operate at about 350° F. and around 3,0000 lbs. psi pressure. Thermosetting material is measured into the heated steel mold. It is then closed and pressure applied. The material softens and flows into the shape of the mold. Then the pressure is released, the mold opened, and the piece removed.

Transfer molding is a variation of compression molding. It is used chiefly in producing pieces in which metal parts are incorporated, as in electrical devices. For this reason, the material is not measured directly into the mold, but first softened by heat in a transfer chamber. From there, it is forced into the closed mold by means of a plunger.

Injection molding is used chiefly for thermoplastic materials, such as combs, flashlight cases, tooth-brush

handles, etc. The Bulletin states that:

> This process is usually done by semi-automatic machines and with the use of multicavity molds, which produce many items at the same time.
>
> The plastic material feeds from a hopper into a cylinder where it is forced into a heating chamber where it becomes soft.
>
> The plastic material in semi-liquid form is then forced by pressure into a cool, closed mold, and here the material hardens by cooling, and the plastics part is ejected. The entire cycle (the whole operation of changing the heated material into the finished piece) can be completed in as little time as 20 seconds.

Molding by extrusion is used to produce continuous strips from thermoplastic materials for such products as flexible tubing, belts, tool handles, etc. Plastic material is fed into the extrusion machine much like meat into a sausage grinder. Inside the machine the material is heated and forced through a die opening. As it emerges, it takes the form of the die. It is carried away by conveyors and cooled by blowers or baths.

After emerging from the machines the parts must be finished by removing excess material, and in some cases by polishing, machining, and assembling.

'Laminating is used to produce sheets and tubes of high strength and hard finish.' The sheets of paper or fabric are soaked in a resin solution and squeezed together under heat and pressure. Usually, the sheets to be laminated are placed between two steel plates, and in high pressure lamination a hydraulic press is used.

New Methods

During the war a new process called low-pressure laminating was developed. There are no press dimension limitations, as in high pressure lamination. Monsanto Magazine for October, 1947, describes the low-pressure process as follows:

> Continuous rolls of paper, cloth, or glass cloth are run through dip tanks to become impregnated with the resin. Then sandwiched between two sheets of cellophane, the continuous sheet passes into an oven. The heat of the oven does two things: it cures the resin and it stretches the cellophane taut, providing the slight pressure needed. After the layup leaves the oven, the cellophane is stripped off.

Low pressure molding is also a new process. It has two advantages. Equipment costs less; and larger pieces can be molded. The new low pressure molding also combines plastics with paper, glass fabric or cloth. Low-pressure molds are made of wood, plaster of Paris, or cement. The resin impregnated material is placed over the mold and a rubber bag put around the mold and material. 'The whole is then rolled into an autoclave and heated. At the same time the air inside the rubber bag is evacuated. This causes the bag to cling firmly to the plastic and paper, or cloth layup, providing all the pressure needed to mold the piece into a whole. Monsanto Magazine concludes the above description thus:

> After describing the kinds of machinery that spew out finished products, it would be unfair not to mention that there is still some hand fabrication in the plastics industry. But the hope is that more and more hand fabricating will give way to machinery. Perhaps some day the evolution will be completed.

Men and Machines

About one-third of the workers in the plastics products industry are women. The Bulletin states:

> Because the production methods of the plastics products industry are largely mechanized, the bulk of the jobs are semiskilled and unskilled. Over a fourth of the workers are in the molding departments. Almost all

> molding machine operators learn their duties in a few months of on-the-job-training. Operators of fully automatic molding machines may be trained in a few weeks . . . In laminating departments, as in molding, nearly all the jobs center around machine operations . . . White collar workers constitute nearly 14 percent of the industry's total employment . . . Most plastics products plants operate more than 1 shift; 3-shift operation is the most common.

In 1939 employment stood around 16,900 in the plastics products industry proper. In December, 1946, it was about 50,000. On this point, the Bulletin states:

> . . . The number of employees doubled between 1939 and 1943, and continued to rise during the war years. Employment did not go up nearly as much as production, however, because lengthening of workings hours and use of improved production equipment and methods resulted in a great increase in output per worker. The number of machines installed has grown faster than the supply of materials, so that many machines are not now being fully used.

The number of compression machines in use rose from 8,000 in 1941 to 12,975 in 1946. In 1941 there were 1,000 injection machines and in 1946 there were 3,275. Extrusion machines rose from 650 to 1,150 in the same period.

'—And Pulled Out A Plum'

As noted earlier, most of the plastics products produced go into industry on a volume basis. The Bulletin interprets this as follows:

> Thus, the demand for plastics products and the resulting volume of production that can be expected for the next few years will be determined primarily by the level of activity in the industries which consume plastics products and by the development of new uses for plastics by these industries . . . A high level of activity is expected in most of these industries for the next few years.

We don't know where the Bulletin got that tip from. It sounds suspiciously like some of the prognostications our notable economists were giving out in 1929. 'All in all,' the Bulletin decides, 'market prospects for plastics products appear highly favorable, provided general business conditions continue to be good.' The same can be said about the prospects for peanuts, sidewalk scooters, and bubble gum, or anything else.

However, the Bulletin holds forth another plum for the plastics products worker:

> The demand for plastics products over a longer period will depend not only on the rate of production of the present users of plastics, but also to an increasingly important extent on new applications by these and other industries.

Thus, we see that the fate and future prospects of the plastics products worker is tied in with the general level of industrial activity and with his industry's ability to chisel business away from other industries. New applications and new uses means chiefly replacing or substituting for present uses.

This is the common lot of the workers. IF industrial activity remains high; and IF more uses are found (chiseled) for their products, there might be a lot of jobs IF technology takes a holiday. That's like the story: 'If we had eggs, we could have ham and eggs, if we had the ham.'

Machines Make Jobs?

Here is the case of a new industry, highly mechanized at its beginning, that has increased its production many times over since 1939, while the increase in jobs has lagged far behind. It is a mass production. industry, characterized by technological operations and unskilled labor. It is an in-

dustry that came into the picture recently. Surely here, if anywhere, there should be a boom in jobs. But not so. The boom is in production. As the ability of the industry to produce grows greater, the curve of man-hours of labor will lag further and further behind.

The Bulletin states:

> **The use of new equipment will considerably increase output per worker. A number of new machines were delivered to the industry in 1946, with greater efficiency than that of the older types. For instance, almost all the new injection-molding machines delivered in 1946 had a capacity of 80 ounces or more, whereas only about a third of such machines in use at the end of 1945 were that large. Moreover, a high proportion of the new equipment consisted of injection-molding machines, which are faster than the more widely used compression machines . . . Moreover, as the industry develops and as competition among plants becomes keener, the tendency will be for the least efficient plants to close down. Higher output per man in the industry as a whole will result.**

Eventually, Why Not Now?

After skating around on thin ice for sometime like this, the Bulletin takes the bull by the horns, as follows:

> **All in all, since machinery and processes are constantly improving, output per worker in the plastics products industry will rise considerably; employment, therefore, is not expected to increase as rapidly as production.**

The 'Bureaucrats' who wrote that had better watch out. They are flirting with Technocracy. The key word in that last quote is THEREFORE. It says that 'output per worker—will rise considerably,' therefore, employment will not increase as rapidly as production.

That's correct. Jobs must lag behind production at a growing rate. The only way to produce more in a technological age is to work less. A modern injection mold that turns out 16 combs every 30 seconds from its multicavity molds cannot provide many jobs. It is not designed for that. It is designed to provide combs.

We find, then, that in spite of the fact that the plastics products industry is new, the birth rate of jobs is lagging behind output. We find also that the level of activity in the industry is tied to the general level of industrial activity. Lastly, we find that the expansion possibilities of the industry depend greatly on its ability to replace similar products of wood and metal, or to find new uses.

This is the level to which technology has reduced this new industry under the tyrannical regimentation enforced by the Price System of trade and commerce. The outlook is hedged about by all sorts of ifs, ands, buts, and perhapses. These are imposed by the Price System. It controls the stop and go lights. The conclusion to all this is that the plastics products worker is in the same boat as all other Americans. There is no bright future for him apart from the common future of all citizens.

The Way to Go

There is no way for an individual to beat the Price System. As the stage of development of technology advances to ever higher levels, each new industry that comes in will provide fewer jobs. The general death rate of old jobs destroyed by technology has long since passed above the birth rate of new jobs brought about by the same cause. The plastics products industry is not exempt from the general physical trend operating in North America.

Technocracy is the only Body of Thought on this continent that has analyzed this trend, and pointed out

the direction it goes in, and the inevitable end result. Technocracy does not create this trend nor can it stop it, nor does it want to stop it. No conceivable power can stop the advance of science and technology. The job that Technocracy has taken on is to educate as many North Americans as possible in regard to the trend. This job is far more important than trying to make more money or to chisel out some security for oneself from this dying system.

We have seen how impossible this is for all to do. It is true that a minority will prosper. That's how a Price System operates. That minority too gets smaller all the time. The great and growing majority will, and must, go from bad to worse under the Price System. There is only one way for all citizens to beat this System. That is for all to beat it at the same time by discarding he entire setup. This means only that we have to discard the System that hold us all back.

It means taking the brakes off of Science and Technology. It means putting them to work on the job of advancing General Welfare of ALL citizens. That wouldn't be so hard to take, would it, Mr. Plastics Products Worker?

Why not join Technocracy and learn all about it?

Notes on the 'Boom' - 1948

'Two years have elapsed since V-E and V-D Days, and peace seems still a long way off. True, there is no large-scale war, but there is fighting and killing and unrest. The outlook for the future, I am sorry to say, does not seem bright. It is rather gloomy. The people everywhere now speak of a third world war as one speaks of the weather.'—Faris el-Khouri of Syria, delegate to the United Nations. (As quoted in the 'New York Times,' August 31, 1947.)

At the end of 1946 the total net public and private debt of the U. S. stood at $393,400,000,000. The net Federal debt was $229,700,000,000. The net State and Local Government debt was $13,600,000,000. The Corporate long-term debt was $41,000,000,000. The Corporate short-term debt was $46,600,000,000. The farm mortgage debt was $5,300,000,000. The urban mortgage debt was $33,500,000,000, (higher than the previous peak of 1930). The farm nonreal estate debt was $2,800,000,000. The noncorporate, nonfarm, commercial, financial, and consumer debt was $20,900,000,000. ('Survey of Current Business,' September, 1947.)

Total utility and industrial electric power generating capacity in the U. S. at the end of November, 1947 was 64,646,387 kilowatts.—From the December, 1947 report of the Federal Power Commission.

Congressman Clarence J. Brown (Rep. Ohio) says that he has information from "sources that seem reliable" 'that the Kansas City Board of Trade has handled more orders for commodity purchase from the District of Columbia than from any state in the country.'—'Wall Street Journal,' December 18, 1947.

The federal barge line on the Mississippi River recently had a 20 percent jump in tonnage handled. 'Business Week' for November 15, 1947, in commenting on this stated: 'Store shelves are becoming well enough stocked that buyers can afford the slower, but cheaper, water transporation.'

'We are in a stage of the boom where vulnerability is great . . . some of the sustaining forces are becoming increasingly precarious . . . a collapse in foreign demand or sudden swing to cautious buying at home could do it.'—H. B. Arthur, economist for Swift and Co., in the 'Farm Journal,' January, 1948.

Each In His Own Tongue

By Publications Division, 8741-1

VOICE OF THE PRICE SYSTEM

Arrival of Nothing

More opinions, and soundly arrived at opinions, mean a better democracy.

Elmo Roper, specialist in opinion polls, in the *Chicago Herald American*, August 19, 1947.

Alibi For The Status Quo

So long as pain comes too often and death comes too soon, truly adequate medical care will remain beyound our reach.

Frank G. Dickinson, economist for the American Medical Association, in a talk to the 15th Annual Meeting of the American Assn. of University Teachers of Insurance at the Drake Hotel, Chicago, December 29, 1947. (As reported by the *Chicago Times*, December 29, 1947.)

Pity The Poor Landlord

Unless landlords are given the opportunity to cease subsidizing tenants the city will have to appropriate money to subsidize the landlords. If you think tenants are not well off, all you have to do is look in the ashcans.

George C. Adams, lawyer for several landlord groups, in a hearing before the Chicago City Rent Commission December 24, 1947. (As reported by the *Chicago Times*, December 24, 1947.)

Communist in Capitalist Clothing

Senator Taft is following the Communist party line through his excursion into socialism in housing, medicine, education, and welfare. He has regrettably been captured by the bureaucrats, an estimated 3,000,00 of whom control the government today.

Herbert U. Nelson, executive vice-president of the National Real Estate Boards Assn., in an interview with the press at Cincinnati, Ohio. (As reported by the *Chicago Times*, October 22, 1947.)

'The Public Be Damned'

They told me at City Hall we would not dare shut off the water supply. I told them I'd take an oath on the grave of my dead mother and father I'd close the city pumping stations if the men ordered it.

We know it would be a calamity. The remaining four pumping stations can't deliver enough water for sanitary purposes. I don't know what would happen in the event of a fire.

A threat by Robert J. Tormey, president Local 7, International Brotherhood of Firemen and Oilers (AFL) to shut off Chicago's water supply unless the city met demands for a wage boost. (As reported by the *Chicago Times*, December 9, 1947.)

'Not Me, I'm Not the Man'

Grain speculators have been unjustifiably blamed for causing high prices. Thank God for the free price system. It has flashed a red warning light on this grain problem. Without free prices, we might have scraped America's grain bins empty before realizing what we were doing.

J. A. Higgons, executive vice-president of the National Assn. of Commodity Exchanges, in a press release regarding hearings being held by a Con-

gressional sub-committee on high grain prices. (As reported by the *Chicago Daily News*, October 22, 1947.)

Call for Sherlock Holmes

We have yet to uncover a single instance of profiteering on the manufacturing, wholesale or retail level.

Congressman Clarence Kilburn (Rep. N. Y.), a member of a subcommittee holding hearings on high prices throughout the country. (As quoted by the *Industrial News Review*, Portland, Ore., November 10, 1947.)

Equal Opportunity

Anyone to whom the steel business looks attractive is perfectly free to enter it at any time. All he needs for an integrated plant of minimum economical size is assured sources of ore and coal, a good supply of nerve and about $200 million.

C. M. White, president of Republic Steel Corp., in a talk to a district meeting of the Pressed Metal Institute. (As reported by *Barron's Weekly*, December 8, 1947.)

'Good Old Free Enterprise'

Private enterprise is not on trial today . . . Private enterprise is the only thing under God's heaven that has been vindicated; everything else in its line has been proved a flop. Private enterprise is the power behind a nation which is just about holding the world together single-handedly, despite some nipping at the heels here and there.

John C. Folger, chairman of the I.B.A. Conference Committee, in a talk before a recent convention of the Investment Bankers Association. (As quoted by the *Chicago Journal of Commerce*, December 12, 1947.)

Philosophy of Toil

. . . I lived in a period when we did not have the school-lunch program. I wonder how I ever got through it . . . I got plenty of lunches and, may I add, we went out and did some work for some of those lunches. We knew how to work. The trouble is today nobody wants to work; everybody wants to have everything handed to him . . .

Congressman Frank B. Keefe (Rep. Wis.) in a talk on the floor of the 80th Congress, First Session. (As quoted by the *New Republic*, August 4, 1947.)

Voice of the Middle Ages

In the first place, education belongs preeminently to the Catholic Church for two supernatural reasons. . . . As for the scope of the Church's educative mission, it extends over all peoples without any limitation . . . Nor is there a civil power which can oppose or prevent it.

Pope Pius XI (1879-1939) of the Catholic (Roman) Church, in his encyclical on education, December 31, 1929. (As quoted by the *Converted Catholic*, December, 1947.)

VOICE OF TECHNOLOGY

'The Senator Is Indiscreet'

You can't argue political motives. It is like arguing with a skunk.

U. S. Senator Owen R. Brewster (Rep. in regard to Democratic objections Maine), Chairman of the Senate Committee investigating the National Defense Program to a group of reporters

that the investigation was a political maneuver. (As quoted by the *Chicago Sun*, October 21, 1948.)

'Momism' in Technology

> The American woman is what is wrong with the American automobile . . . The balloonlike, chromium-encrusted bodies are designed so that middle-class wives may impress each other with their opulence . . . Women have demanded extremely easy steering and bedlike springing . . . Delicate ladies' bottoms must never know the realities of rough roads . . . In addition, women's demand for silence of operation has caused the use of giant, inefficient, uneconomical engines, oversized to begin with in order to drag around almost two tons of chromium and sheet iron.

Ralph Stein, cartoonist and auto fancier, in a recent issue of *True* magazine. (As quoted by *Fortune*, September, 1947.)

Look to the Flow Line

> Remind us, our Father, that when we plug in an electric iron and it fails to work, we do not conclude that electricity has lost its power, nor do we plead with the iron. We look at once to the wiring to find what has broken or blocked connection with the source of power.

A prayer by the Reverend Peter Marshall, Chaplain of the U. S. Senate, in opening a recent session of the Senate. (As quoted by the *New Republic*, December 8, 1947.)

Social Aspects of Science

> In the first place, of course, we have the tremendous task of making known to the great masses of mankind the results of scientific work. But far more important than knowing how a radio works or how a milking machine operates is to understand the great social implications of those discoveries.

Reuben G. Gustavson, chancellor of the University of Nebraska, in a radio discussion on the University of Chicago Round Table broadcast, November 9, 1947.

Pro-Fascism Isn't Funny, Senator

> I cannot believe that the heroes of Stalingrad have become the villians of the Kremlin suddenly and overnight. There is something funny somewhere.

U. S. Senator, Glen H. Taylor (Dem. Idaho), in a speech to the Oregon CIO convention recently. (As quoted by *Local* 600's *Ford Facts*, October 18, 1947.)

After You, My Dear Adolph

> We hear more and more about the possibility of a preventive war on Russia, and if we seriously entertain this possibility, we ought first to make our apologies to the Nazis we hanged at Nurenberg.

Robert Maynard Hutchins, chancellor of the University of Chicago, in an article in *Common Cause*. (As quoted by the *Chicago Sun*, December 12, 1947.)

Lice Are Parasites, Too

> The Nation realizes that Wall Street is an artificial community. It grows no corn. It digs no coal. It makes no pig iron. Its multitude of sharp-witted parasites live by betting on what the real producers are going to do.

Cyrus Eaton, Cleveland Industrialist and banker, in an article in *The Progressive*, January, 1948.)

Maybe They Can Build Doghouses

> Let me sum up the housing situation in America today as I see it:
>
> The reason we don't get more houses is that the real estate industry is wedded to an antiquated, inefficient, but highly profitable way of doing business—and wants to keep it that way.
>
> It is harder today to find a place to live than it was last year. It will be harder still next year. The shortage is growing worse.

Nathan Straus, former U. S. Housing

Administrator, in an article in the *American Magazine*, December, 1947.

'—As Others See Us—'

. . . a good deal of what is most reactionary in the political and social life of America today is directly traceable to the influence of a militant Roman Catholic Church, which is as much the expression of the purposes of a foreign power as any influence exerted by the Communist Party . . . the members of the Roman Catholic Church seem able, like their coreligionists in Great Britain, to obtain pivotal posts in the Foreign Service, exercising a power of infiltration which must make members of the Communist Party feel that they are infants at the game. Anyone who measures Roman Catholic strength in the United States today with what it was a generation ago cannot fail to be impressed by its growth, as well as perturbed by its direction. Spain apart, I doubt whether there is any country in the world today in which its authority is greater than in America.

Harold J. Laski, professor of political science at the University of London, England, in an article in *The Nation*, December 13, 1947.

Education for an Age of Power

The Colorado Education Association recently had a convention. Some newspaper reporters got the bright idea to test the attending teachers on their knowledge of American history. About 100 teachers volunteered from among the 6,000 delegates upon the promise that their identity would be kept secret. The quiz was not a hard one. Nevertheless the teachers averaged only 67 out of a possible 100. The twenty five questions asked were taken from a standard text book used in Denver public schools. Some grades were as low as 20, or only five correct answers out of the twenty five. Some wrong answers were as follows: Aaron Burr assassinated Abraham Lincoln; The Monroe Doctrine guaranteed equal rights to all; The U. S. acquired the west from Spain in the Spanish-American war; about half of the replies stated that free education for all 'was guaranteed in the bill of rights, which doesn't even mention education.'—From 'Kansas City Star,' October 24, 1947.

'Oh Canada'

'Use of Canada's resources will relieve the strain on United State's resources and buying here by the United States would help relieve the shortage of United States funds. We must not lose sight of the inevitable connection between Canada and the United States in trade as well as in defense and culture.'—Sydney G. Dobson, president of the Royal Bank of Canada speaking before the annual meeting of stockholders. (As quoted by the 'Wall Street Journal,' January 9, 1948.)

The British emblem has been hauled down from the staff at the Quebec capitol. It was replaced by the ancient flag of manarchist France consisting of a white cross and four fleur-de-lys on a field of blue. In reporting this act of pro-fascism against North America the 'Chicago Tribune,' of January 23, 1947 stated: 'The new flag was raised by Quebec order-in-council, announced by Premier Maurice Duplessis yesterday to the suprrised Quebec legislature.'

Power Sources, U. S. A.

Reprinted from 'The Study of the Physical World' by Nicholas D. Cheronis, James B. Parsons, and Conrad E. Ronneberg of the Chicago City Colleges

and thirty million people working together, aided by several million horses and other

'The energy requirements in the United States are so enormous that all the hundred beasts of burden supply less than five percent of the total. The remainder is obtained from other than animal sources

'Of these coal, oil, and waterfalls furnish the billions of horsepower that are required to keep our particular type of civilization going. This fact is shown in Table 55, which lists the principal sources of energy available and the proportion of energy yielded by each in the United States.

Table 55. Sources of Energy

Source	Utilized in the U. S. Total Annual Energy Percent of the
1. Coal and gas produced from coal	58
2. Oil (gasoline, kerosene, fuel oil)	22
3. Natural gas	3
4. Wood	4
5. Animal Power (foods)	5
6. Alcohol (used for power)	Very small
7. Water power (falls and tides)	8
8. Wind	Negligible
9. Internal heat of the earth	0*
10. Direct heat from the Sun	0
	100

*A small amount of electricity is produced by volcanic steam in California.

How to Enforce Scarcity

'Cold storage stocks of food rose to 4.8 billion pounds on December 1, a record level. This is about 20 million pounds over the previous high set last month and more than the previous record of 4.4 billion pounds on hand December, 1946.'—'Wall Street Journal,' December 17, 1947.

'Food supplies on the American home front will shrink even lower in 1948, the Department of Agriculture predicted today as administration and congressional leaders studied the problem of helping feed Europe in the months ahead.'—'Chicago Sun,' November 5, 1947.

NOTICE

To Our Readers

If you will mail us seven names of friends together with a one dollar bill we will send each one a sample copy of 'Great Lakes Technocrat.' 7 for $1.00.

'In southeastern Alaska there are 200 potential hydroelectric power sites capable of developing over 1,000,000 horsepower; proposed mills to turn Alaskan timber into newspaper pulp have plenty of undeveloped local power.'—'Science Digest, December, 1947.

* * *

Five Alaskans, out of a small population of 91,000, die each week from tuberculosis. 'The yearly death rate in continental USA from tuberculosis is 40 per 100,000 population. Arizona, where many sufferers seek treatment, has the highest death rate among the states, 123. But in Alaska the annual rate of casualties is 362. "The death rate from tuberculosis in Alaska," says George Sundborg, manager of the Alaska Development Board, "exceeds that of China or India." '—From 'Survey Graphic,' December, 1947.

* * *

PEANUTS—The standard of living the average citizen gets under the Price System compared to the standard a Technate could provide.

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NORTH AMERICA'S ONLY SOCIAL DYNAMIC

WHAT?

★ Technocracy is the only North American social movement with a North American program which has become widespread on this continent. It has no affiliation with any other organization, group or association either in North America or elsewhere.

★ The basic unit of Technocracy is the chartered Section consisting of a minimum of 25 members and running up to several hundred.

★ It is not a commercial organization or a political party; it has no financial subsidy or endowment and has no debts. Technocracy is supported by the dues and donations of its own members. The widespread membership activities of Technocracy are performed voluntarily; no royalties, commission or bonuses are paid, and only a small full-time staff receives subsistence allowances. The annual dues are $6.00 which are paid by the member to his local Section.

★ Members wear the chromium and vermilion insignia of Technocracy—the Monad, an ancient generic symbol signifying balance.

WHERE?

★ There are units and members of Technocracy in almost every State in the U. S. and in all Provinces in Canada, and in addition there are members in Alaska, Hawaii, Panama, Puerto Rico and in numerous other places with the Armed Forces.

★ Members of Technocracy are glad to travel many miles to discuss Technocracy's Program with any interested people and Continental Headquarters will be pleased to inform anyone of the location of the nearest Technocracy unit.

WHEN?

★ Technocracy originated in the winter of 1918-1919 when Howard Scott formed a group of scientists, engineers and economists that became known in 1920 as the Technical Alliance—a research organization. In 1933 it was incorporated under the laws of the State of New York as a non-profit, non-political, non-sectarian membership organization. In 1934, Howard Scott, Director-in-Chief, made his first Continental lecture tour which laid the foundations of the present nation-wide membership organization. Since 1934 Technocracy has grown steadily without any spectacular spurts, revivals, collapses or rebirths. This is in spite of the fact that the press has generally 'held the lid' on Technocracy, until early in 1942 when it made the tremendous discovery that Technocracy had been reborn suddenly full-fledged with all its members, headquarters, etc., in full swing!

WHO?

★ Technocracy was built in North America by North Americans. It is composed of North American citizens of all walks of life. Technocracy's membership is a composite of all the occupations, economic levels, races and religions which make up this continent. Membership is open only to North American citizens. Aliens and politicians are not eligible. (By politicians is meant those holding elective political office or actice office in any political party.)

★ Doctor, lawyer, storekeeper, farmer, mechanic, teacher, preacher or housewife—as long as you are a patriotic North American—you are welcome to Technocracy.

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The Logic of Ignorance

By R. F. Novalis. 8741-1

'Yeah, I know the farms are mechanizing—but it still takes men to build those tractors!'

Too many conversations have been stopped short at this apparently irrefutable point, for the obvious reason that tractors are not yet produced *automatically*. Similar comments have been overheard about machine tools, electric power turbines, Diesel locomotives, and other instances of new technology.

So here is the ammunition in the form of facts with which to demolish such logical ignorance:

A total of 398,674 tractors* of all sizes were manufactured in the United States in the year 1946.

The average work-week in the tractor-building factories was 39 hours per man, and a monthly average of 48,110 production workers were employed.** This works out to a grand total of 97,567,080 man-hours required to fabricate those 398,674 machines (not considering the far greater number of kilowatt-hours of electricity, machine tool-hours, etc., required to do most of the work in producing those tractors).

Thus, the average agricultural tractor was built with 244 man-hours.

Now 'a medium size tractor displaces 5 men and six mules.'***

Inasmuch as the average farm-worker (both hired and family) was on the job 10.4 hours per working day in 1946,**** *five* men employed on a farm perform approximately 52 man-hours altogether in one day.

The 52 man-hours per day divided into the 244 man-hours used to make one tractor, gives 4.7 days.

So—after the first 4-3/4 days in use, your tractor is destroying man-hours of toil *and purchasing power* for every hour of every day it is doing farm work.

In 1940 there were 1,500,000 tractors in use on the farms of the United States. Today there are more than 3,000,000! More power to the tractors!

ED NOTE: The total number of Man-hours used to produce the raw materials going into each tractor is too small to upset the validity of this analysis.

* U. S. Bureau of the Census
** U. S. Bureau of Labor Statistics
*** J. H. Neal, Head Agricultural Engineering Dept., Alabama Experimental Station, writing in 'The Progressive Farmer,' August, 1947.
****Bureau of Agricultural Economics, U.S.D.A.